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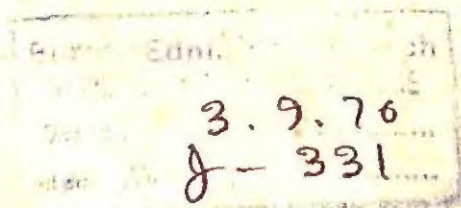


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UNITED NATIONS CONTENT IN INDIANA NEWSPAPERS*

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A. INTRODUCTION

The achievement of a science of opinion formation and change is a continuing process, a conjoint enterprise which is of concern to psychologists, sociologists, political scientists, and educators. Through the use of improved interviewing and sampling methods, together with new techniques of item analysis and scaling, it has been possible to narrow down the range of prediction with regard to election behavior. It is now possible to determine, within high confidence limits, the opinions that are held within a given population at a given time. But it is not so possible to predict what changes will tend to take place in those opinions over time, as a result of great events or other factors, and it is not so possible to determine, in "real life" situations, what influences tend to bring about a change in these opinions. The usefulness of a science of public opinion will be enhanced when it is possible to determine not only what opinions are held in a population but also what changes are anticipated in those opinions as a result of influences operating in the population during a given time-period.

The present study postulates, with Theodore Newcomb (4), that opinion formation and change is a process which takes place through interpersonal and intermediary communication. The concept of "culture," *forte* of the anthropologists, is made empirically meaningful when it is given the referent of communications content. In other terms, it is meaningful to refer to the "community ethical system," consisting of the norms and values operating in a population, as an on-going process which is largely synonymous with the propositions being articulated in interpersonal communication and through the mass media.

The present study takes a particular population, the State of Indiana, and analyzes the content of one of the principal media of communication, newspapers, over a given time-period with regard to a particular area of social policy, namely, the activities of the United Nations. The purpose

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¹The author is a visiting scholar in the Department of Social Relations during the academic year 1953-54. He is indebted to Professor Gordon W. Allport for suggestions concerning an earlier draft of the manuscript.

is not to study effects of this communication on opinion formation and change but instead the research is designed to explore ways of analyzing and representing, in rigorous fashion, newspaper content as one of the factors in the communications matrix which tends to bring about changes in the intensity and direction of public opinion.

B. RESEARCH DESIGN

The time-period considered in the study is the month of July, 1953, a 31-day interval which included among its events the signing of the armistice in Korea. The sample is based on United Nations content in the newspapers published in 97 communities within the borders of the State of Indiana.

The method used is that of content analysis, with the addition of certain innovations which were necessitated by the kinds of problems encountered in the research. The unit of analysis is the frequency with which the symbols "United Nations," "U. N.," "UNESCO," etc., were mentioned in various kinds of news and policy contexts (e.g., "U. N. Forces Repel 2,000-Man Attack"; "Harry Truman is Visitor at U. N."; "Women in U. N. Study Status of All Women").

Such "contexts," or belief-value matrices, are taken to have both *intensity* and *direction*, or vector properties. They have both magnitude, or degree of coerciveness, and "orientation"—the degree of "plus-ness" or "minus-ness" of the content toward a topic. The analysis in this study, it will be shown, proceeds along both of these dimensions.

In all, the data of the study consists of about 1,500 items (news clippings) pertaining to the United Nations which appeared in the issues of 119 newspapers during the 31-day period. The combined circulation of these newspapers is about 1,700,000. The group consists of 83 daily newspapers, 30 weekly newspapers, three newspapers published three times per week, and three newspapers published two times per week.²

As to political orientation, the respective numbers of newspapers in the group, their total numbers of issues for the month, and the average number of issues per newspaper are given in Table 1.

Comparisons are made in the study of the quantity and direction of U. N. content in these three political groupings. Also the content of rural and

²Circulation figures, frequencies of issue, rural-urban data, and political orientations of the papers are based on the N. W. Ayer *Directory of Newspapers and Periodicals*, 1953 (3).

urban newspapers is contrasted, using the U. S. Census figure of "below 2,500" as a criterion of rural communities. The numbers of newspapers in the sample which are published in rural and urban communities, respectively, their total numbers of issues for the month, and the average number of issues per newspaper are given in Table 2.

TABLE 1

	Papers	Issues	Averages
Republican	47	963	20.5
Democratic	35	682	25.2
Independent	37	822	22.2

TABLE 2

	Papers	Issues	Averages
Rural	21	150	7.1
Urban	98	2,317	23.6

The procedures of the study may be divided into three classes of operations: (a) a topical analysis of the content by way of which 10 principal content categories, or news and policy contexts, were derived; (b) an intensity analysis by way of which magnitudes were assigned to the topics or contexts; (c) a directional analysis, in certain categories, by way of which the "orientation"—positive, negative, or neutral—of the contexts was determined.

C. TOPICAL ANALYSIS

From repeated readings and classifications of the items, 10 categories of United Nations content were gradually derived and refined. In all categories, for all newspapers, for the entire 31-day period, the symbol "U. N." appeared in the items with a total frequency of 5,293. The percentages of this total which were found in the 10 content categories, respectively, are presented in Table 3.

The categories are empirical, or non *a priori*, in the sense of having been derived from the data and in the sense of having specifiable content properties or attributes which are common to the items of one category and not common to the items of another category. It was not difficult to get the components of all the items fully "included" in these 10 categories, with the exception of the 1.7 per cent of the items which are contained in the "miscellaneous" classification. These items were concerned with a variety of topics such as the U. N. budget, opinions on the part of U. N. diplomats

about unrest in the Soviet regime, and items pertaining to the proposed Bricker constitutional amendment.

The bulk of the U. N. content during this time-period was, obviously, devoted to topics concerned with the Korean conflict. From a comparison of the number of mentions in C 1 and C 2 it is important to note that the U. N. symbol appeared almost nine times more frequently in connection with "peace" or negotiation activities than it did in connection with "war" activi-

TABLE 3
A COMPARISON OF THE FREQUENCIES WITH WHICH THE U. N. SYMBOL WAS MENTIONED IN THE 10 CONTENT CATEGORIES

Content categories	Mentions	Percentage of total
C 1. Korean truce negotiations	2,109	39.8
C 2. Korean war news	244	4.6
C 3. Post-truce conference and policies	556	10.6
C 4. Armistice enforcement and POW exchange	419	7.9
C 5. Recognition of Red China	449	8.5
C 6. Appointments to U. N. Assembly	614	11.6
C 7. Loyalties of U. N. employees	101	1.9
C 8. U. S. and U. N. dignitaries	87	1.6
C 9. U. N. special agencies and programs	104	2.0
C 10. Opinions about the U. N. in general	518	9.8
Miscellaneous	92	1.7
Totals	5,293	100.0

ties involving forceful combat. Such a finding has value for the understanding and prediction of shifts in the systems of meaning which converge around our primary social symbols as we move through the changing panorama of the historical process.

D. INTENSITY ANALYSIS

To meet the challenge of several methodological problems encountered in making the intensity analysis (e.g., the number of papers published on each day of the week is not constant), the concept of the "power number" (PN) was devised, a unit which could be used for making comparisons within the present study as well as from one study to another. This unit represents simply the mean frequency with which the symbol is mentioned, relative to the number of issues published during a given time interval.

In this study, a PN was derived by dividing the number of mentions by the number of issues and then multiplying this quotient by 100 so as to give figures which would be roughly of the same magnitude as the original data. For example, in Category 1 on July 15 the U. N. symbol appeared in the papers with a frequency of 148. When converted into the index, this num-

ber became 164. (There were 90 issues published on this date. Therefore: $148/90 \times 100 = 164$.)³

Using this scheme, intensities in each of the ten content categories were derived for Republican, Democratic, Independent, urban, and rural papers respectively. These comparisons are presented in Table 4.

It can be seen from Table 4 that, e.g., the magnitude for C 7, Loyalties

TABLE 4
A COMPARISON OF FREQUENCIES IN THE 10 CONTENT CATEGORIES FOR VARIOUS CLASSIFICATIONS OF NEWSPAPERS

Newspapers	Content categories										Totals
	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	C 9	C 10	
Republican	79.6	9.4	26.4	19.5	17.7	22.5	3.2	4.7	2.2	24.2	213.9
Democratic	75.5	8.2	15.2	12.6	14.3	22.9	.8	.9	2.6	16.3	172.4
Independent	100.6	11.8	21.9	17.5	22.3	29.3	7.9	4.4	7.9	21.0	250.2
Rural	22.0	7.3	1.4	7.3	4.0	10.0	0.0	7.3	4.7	27.3	91.3
Urban	89.3	10.0	23.8	17.5	14.8	25.8	4.3	3.3	4.2	20.5	222.4

of U. N. employees, was 0.0 for rural papers and 4.3 for urban papers. The maximum intensity for any of the 10 content categories, it can be noted, was 100.6 in C 1, Korean truce negotiations, for "Independent" newspapers. These figures are indices of the degree to which components of U. N. content were called to the attention of readers of various classifications of newspapers. It is important to note that the total frequency with which the U. N. symbol was mentioned, in all contexts, was greater for urban papers than for rural papers by the significant ratio of 2.4 to 1.

To study the nature of the contextual strata and intensities in the overall communications matrix of these communities as they move through time, the data were converted into PNs for each content category, by days, and were plotted graphically. These data are presented, in tabular form, in Table 5.

It can be seen from Table 5 that Categories 7 and 8—Loyalties of U. N. employees; U. S. and U. N. dignitaries—were rather dormant throughout the month, never surpassing a magnitude of 40. Categories 4 and 6—Armistice enforcement and POW exchange; Appointments to U. N. Assembly—do not appear in the profiles until July 25-27, the interval at the close of the

³For those who work in the technicalities of content analysis, it can be indicated that the variation in the number of issues published on each day of the week for this group of 119 newspapers was as follows: Monday 85, Tuesday 86, Wednesday 90, Thursday 97, Friday 101, Saturday 72, Sunday 14 (a total of 545 issues for the week). In findings presented herein (Table III), the effects of these inconstancies were counteracted by multiplying the original data by the reciprocals of these seven numbers.

TABLE 5
A COMPARISON, BY DAYS, OF THE FREQUENCIES IN THE TEN CONTENT CATEGORIES

Cate- gories	Days																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
C 1	13	8	39	11	14	29	162	211	137	70	98	114	158	86	163	162	128	31		217	76	69	106	57	102	71	144	44	15	1	11
C 2	2		1		28	1	10	10	5	3	1		4	6	2	27	41	4		12	17	3	7	2	18	14	55	10	8	6	6
C 3				10		8							18		1	1	2			2	17	11	12	62	39	43	216	106	66	50	10
C 4																										7	49	136	72	147	45
C 5	1			3	99	7	2		3				12	6	4					12	3	8	26	6		41	126	101	58	60	
C 6																								3	186	142	115	290	72	15	40
C 7	6	5						10	2		3	14	5											16			32	31		1	
C 8		1	14	7	21	14	6	2	5							7						4	7	2	1	14	1	2	6	5	4
C 9	11	3	7		14	6		2		4			8	1		7	16					1	2	2			18		8	12	
C 10	22	9	7	7		2	13	3	22	9	80	135	10		26		41				4	17	1	6	1	14	113	54	15	28	68
Totals	55	26	68	38	176	67	193	238	174	86	182	263	215	99	196	204	228	35		231	126	108	143	176	353	305	752	800	386	318	257

Korean war. (At this time there is a five-day period of controversy over the proposed appointments of Governors Craig and Byrnes to the U. N. Assembly. An intensity of 290 appears on July 28; but two days later this magnitude has faded to nil.)

These findings support the observation by Allport and Faden (1) that newspaper content with regard to a social issue varies in intensity over a given interval of time. In their study (having to do with newspaper discussion of the Neutrality Act), a "periodicity" of content was found which the authors characterize in this statement: "Although the interest was relatively high all through the period, it was markedly irregular, each surge being followed by a sag." These authors suggest that peaks of interest are short-lived because both readers and editors are "fatigable" with regard to a particular topic. A basic psychological factor is "the desire of the average man to be freed as quickly as possible from the tension of worry and annoyance in matters of public policy."

Such tendencies toward "closure" are to be seen in our data, particularly in the gradual decline of items pertaining to the Korean truce negotiations (C 1 in Table 5) and in the minor intensities for Korean war content (C 2) during the time-period. (Certainly the latter topic had long since reached the "fatigue" level.) While intensities for the total U. N. content increased with extreme sharpness as a result of various related events and issues at the time of the signing of the Korean armistice (July 27), the increases in the truce and war content categories (C 1 and C 2) are only minor on this day and quickly fall away into oblivion for the remainder of the period.

It is interesting to note that the magnitude of content in C 10, a general category of opinion about the U. N., increases on July 27 (Table 5) with the signing of the armistice—seemingly an occasion which called for the expression of latent ideological preferences. The issue of admitting Red China into the U. N. (C 5), which had been quietly current throughout the period, also increases in intensity at this time, on July 28.

All of these data suggest the proposal that social issues, or news and policy contexts, move through time at three levels of intensity: L 1, the "tranquil" stage, in which the topic is mentioned with 0-40 intensity; L 2, the "animated" stage, in which the topic is receiving active attention—with intensities of about 40-200; L 3, the "agitated" stage, marked by sharp or turbulent peaks, with intensities of about 200-800.

It is fruitful to apply this scale to the communications intensities which are found in individual communities. Thus it is possible to see that for a

given area of news or policy concern some communities are at a "tranquil" level while in other communities the topic has reached the "animated" or even the "agitated" stage. Such an analysis was made for the 97 communities represented in this study and, in the terms of Karl Deutsch (2), substantial "discontinuities" in communications content were noted from one community to another.

Particularly striking is the greater communications intensities found in the metropolitan communities. Analysis of the data shows that among the 62 communities below 10,000 population, in only 10 (16 per cent) did the United Nations reach a PN of 200 or more during the time period under study. Among the 35 communities in the group having more than 10,000 population, 23 (66 per cent) reached a PN of 200 or more. The intensity continuum begins at a "minimum" point with a village in the 2,500 population group and reaches a "maximum" in the city of Indianapolis, a community of 427,000 population. The range here is from 13 to 762, or 749 points.

The interesting task, one which was beyond the scope of this study, would be to determine in detail the psychological and sociological factors that bring about differences in both kinds and quantities of communications content among individual communities. Present data suggest a curvilinear relationship between population densities and communication magnitudes.

E. DIRECTIONAL ANALYSIS

An analysis of the direction or "orientation" of the content was made in those categories where the nature of the items was such that a single investigator could confidently classify the materials as being "positive," "negative," or "neutral" with regard to the salient focus of the content. At this stage in methodological development, a certain reluctance was felt toward proceeding with a full-scale directional analysis of all items in the study since it was thought that some kinds of content would be interpreted rather differently by perceivers holding divergent value orientations. Thus an item like "6,000 Communists Are in U. N. Trap" might have markedly different "effects" on personalities whose ideological positions vary along continua having to do with pacifism, ethnocentrism, radicalism-conservatism, and other values.

For these reasons, the news items involving U. N. participation in the controversial Korean war do not enter as such into our directional analysis. The "effects" of such materials on attitudes toward the U. N. are, however, reflected to some extent in the analysis which is made in C 10, a general

category of opinion about the U. N. which draws on all of the other categories in the study.

The results of the directional analysis are presented in Tables 6 and 7. In Table 6 where there is a comparison of the percentages of pro, con, and

TABLE 6
ANALYSIS, BY CONTENT CATEGORIES, OF THE DIRECTION OF CONTENT IN C 5, C 9, AND C 10, FOR ALL PAPERS

Content categories	Per cents		
	Positive	Negative	Neutral
C 5 Recognition of Red China	3.8	62.6	33.6
C 9 U. N. special agencies	71.1	9.3	19.6
C 10 Opinions about the U. N.	46.7	46.4	6.9

TABLE 7
ANALYSIS, BY NEWSPAPERS, OF THE DIRECTION OF CONTENT IN C 10, OPINIONS ABOUT THE UNITED NATIONS IN GENERAL

Newspapers	Per cents		
	Positive	Negative	Neutral
Republican	48.5	45.6	5.9
Democratic	59.0	51.4	9.5
Independent	37.2	56.1	6.7

neutral mentions in particular contexts, for all newspapers, the percentages for C 5 pertain to the issue of admitting Red China into the United Nations, the percentages for C 9 pertain to the topic of the U. N. specialized agencies and programs, while the percentages reported for C 10 pertain to the United Nations *per se*. As suggested previously, C 10 draws definitely directional statements from items in all of the categories of the study and, noting that this category contains nearly 10 per cent of the total mentions of the U. N. symbol, it is believed that the percentages presented therein (46.7 +, 46.4 —) reflect rather well the delicate balance of favorable and unfavorable U. N. content throughout Indiana during this period.⁴

The percentages for C 5, reported in Table 6, show that newspaper content was almost overwhelmingly opposed to the seating of Red China in the United Nations. It is a probable hypothesis that such a predominantly unfavorable "communications climate" would exert on individual opinions a marked degree of pressure toward conformity.⁵

⁴It is interesting to note that a Gallup poll, reported in the press on July 11, found that in the general population 48 per cent believed that the U. N. has justified its existence, 30 per cent thought that it has not, and 22 per cent had no opinion.

⁵A Gallup poll, reported in the press on July 5, found that in the general population 23 per cent approved, 60 per cent disapproved, and 17 per cent had no opinion with regard to giving Red China a seat on the U. N. Security Council.

The percentages for C 9, reported in Table 6, indicate that content focusing around the U. N. specialized agencies and programs was predominantly "positive," consisting in the main of items pertaining to projects or studies carried out by these agencies which are generally regarded as "constructive." (Even in newspapers where the prevailing editorial position was generally hostile to the U. N., approval was found for the routine work of the U. N. as an international "service organization"—in the gathering of information and vital statistics about "food, clothing, medicine, education, weather, trade, and general economics.") It should be noted, however (Table 5), that while there was a steady current of such content running through the Hoosier press, at no time did such content rise out of L 1, the "tranquil" attention band, and also (Table 3) this category accounted for only 2 per cent of the total mentions of the U. N. symbol.

The analysis by newspapers for C 10, reported in Table 7, shows that opinion about the United Nations was somewhat more favorable among the editors of Democratic newspapers than was the case with Republican and Independent papers. However, it should be recalled that the intensities in C 10, as we have seen in Table 5, were higher for Republican and Independent papers than for Democratic papers. Thus unfavorable views had a greater magnitude, or "vector strength" than did content which was favorable to the U. N. organization.

F. SUMMARY AND CONCLUSIONS

This study has sought to explore ways of analyzing and representing newspaper content as one of the factors in the communications matrix which tends to bring about changes in public opinion. We have portrayed the nature of United Nations content in 119 newspapers published in 97 Indiana communities during a 31-day time interval. Three kinds of procedures have been carried out: (a) a topical analysis by way of which 10 main categories of content, or news and policy contexts, were derived; (b) an intensity analysis by way of which magnitudes were assigned to the topics or contexts; (c) a directional analysis, in certain categories, by way of which the "orientation"—positive, negative, or neutral—of the contexts was determined.

The data have suggested that there are marked "discontinuities" from one community to another, particularly between rural and urban groupings, in the levels or distributions of U. N. information. The determination of the psychological and sociological factors that bring about differences in both

kinds and quantities of communications content among individual communities is a point of departure that follows from the study.

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WHITE ATTITUDES TOWARDS NEGRO-WHITE INTERACTION IN A NUMBER OF COMMUNITY SITUATIONS*

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A. INTRODUCTION

Students of the Negro in America cite the "Great Migration" beginning in 1915 as establishing that the pattern of Negro in-migration is northward and toward the already flourishing urban centers. The newly arrived Negro had, as had previous immigrant groups, gravitated toward the localities where the rent was cheapest and the housing was poorest. This resulted in a rapidly formed and soon swollen "Black Belt." Social discrimination and restrictive covenants were successfully applied to contain Chicago's growing Negro population within this narrow, economically deteriorated band of territory. In spite of the legal "cordon sanitaire" placed around the "Black Belt" a gradual expansion of Negro residential areas took place both during and immediately after World War II. In the spring of 1948 restrictive covenants were successfully challenged when the Supreme Court, in response to an action arising out of a case contesting the right of Negro residency in Chicago, declared restrictive covenants unenforcible. This decision opened the way for a widespread in-migration of white neighborhoods by Chicago's 600,000 hardpressed Negro residents.

Within this context the present study is concerned with the effect of biracial contact on the attitudes of white residents of the invaded community towards the Negro in-migrants. Specifically, it asks:

1. What attitudes do the white residents of Chicago have towards Negro-white participation in a number of interactive situations which are likely to occur in a mixed community?
2. How are these attitudes affected by biracial contact and by the social status of the white residents?

B. PROCEDURE

1. *Construction of the Research Instrument*

There are many situations within the community where contact with neighbors is common. Some examples include joint worship, sharing pub-

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¹This material is derived from the author's dissertation submitted in February, 1952, in partial satisfaction of the requirements for the Ph.D. degree at the University of Chicago.

lic transportation, marketing at the same store, membership in a parent teachers association, and many similar situations in which contact is a function of residency within the neighborhood. Ten interactive situations in which mixed participation would be very likely in case of Negro in-migration were selected. They were: joint use of public transportation, participation in mixed housing, a Negro obstetrician's delivery of a white mother, the acceptance of a Negro pastor, a situation involving a mixed adolescent group, riding with a Negro taxi driver, acceptance of an educated Negro neighbor, delinquent play of a mixed children's group, employment of a Negro handyman, employment of a Negro domestic worker.

In order to avoid making the respondents aware of the intent of the study the situations were designed by composing them in journalistic style and presenting them to the respondents as new items.² This method is similar to that used by Jones (3) in his study of life, liberty, and property rights in Akron, Ohio.

Each respondent was asked to approve, disapprove, or qualify her feelings about the conflict of forces in the story incidents. The informants were also asked to comment on their choices so that insight into the reasons for their decisions could be obtained.

2. *The Areas Studied*

Three community areas on Chicago's South Side were selected for this study.³ These three communities were chosen to meet the following criteria: (a) to provide for variations in the degree of residential contact experienced by the residents of each area, (b) each contact area had to contain a separate lower and middle status subcommunity, (c) the communities were expected to be comparable in those other factors that were relevant to the study.

The communities were divided into three areas: Area I was designated as outside of the path of Negro in-migration and free of Negro residents. Area II was designated as undergoing active residential in-migration. Area III was designated as having a fairly equal mixture of Negroes and whites who had been living as neighbors for six months or longer.

²For a presentation of the news items and the directions for their administration, the reader is referred to the appendix at the end of this paper.

³A detailed description of the location and the relevant community facts about these areas can be found in Winder, A. E., *White Attitudes towards Negro-White interaction in an area of changing racial composition*.

3. *The Sample*

The study was limited to white housewives. Their social status was determined by a modification of the index of status characteristics developed by W. Lloyd Warner and his associates (4). Ninety white housewives were interviewed, 30 from each area of residence. Fifteen middle and 15 lower status respondents were interviewed from each of the areas.

4. *Treatment of the Data*

The data from the news items have been scored into three qualitative categories. These categories have been designed to represent three points on a continuum describing the attitude towards participation with the Negro in a specific situation. The three categories were: (a) Participation with the Negro in a specific interactive situation was accepted. (b) Participation with the Negro in a specific interactive situation was made conditional. (c) Participation with the Negro in a given situation was rejected.

A score of 2 was assigned to a response rejecting participation, a score of 1 was assigned to a response which favored conditional participation, and a score of 0 was assigned to a response favorable to participation. To obtain a score recording the degree of participation accepted for a situation the scores of the respondents were tallied for that individual situation. For example, if all the lower status residents of Area III rejected a given situation, this total rejection would be reflected in a score of 30.

This data was then analyzed in three separate ways. First, the degree of acceptance or rejection of each situation by all the respondents, independent of classification, was obtained by tallying the scores of all the respondents to each situation. Then the effects of social status and area of residency on attitudes towards participation in each situation were determined by applying an analysis of variance to each situation. Finally, the data was analyzed qualitatively with the object of obtaining the following information: (a) The reason the respondents gave for holding their various attitudes towards participation. From this information we should have been able to find out how the respondents defined some of the hardships and anxieties they felt about experiencing residential contact, how they defined some of the rewards derived from living in an interracial community, and what actions they contemplated taking to aid or forestall Negroes moving into their neighborhood. (b) The experiences they volunteered as reasons for their attitudes toward participation. This information should have enabled us to gain insight into some of the experiences that reinforce atti-

tudes of prejudice, and some of the experiences that make for acceptance of accommodation to living in an interracial community.

C. A PRESENTATION AND DISCUSSION OF RESULTS

Table 1 presents the level of acceptance or rejection of each situation by all the respondents regardless of their social status and their susceptibility to biracial community contact.

TABLE 1
THE MEAN SCORES ON THE INDEX OF PARTICIPATION FOR ALL RESPONDENTS TO EACH INTERACTIVE SITUATION*

Situations	1	2	3	4	5	6	7	8	9	10
M	.83	1.10	.86	1.74	1.13	1.24	1.31	.52	.45	.46

*A score of 0 indicates complete acceptance of participation, and a score of 2 complete rejection.

Situation 4, participation in mixed adolescent company, has a score of 1.74 which signifies that most respondents rejected participation in this situation. Situations 8, 9, and 10, concerning participation between young children in a mixed group, employment of a Negro handyman in the home, and employment of a Negro domestic in the home, all have scores reflecting a high degree of willingness by all respondents to accept these situations. The scores of the remaining situations indicate only that some respondents accepted participation in these situations and some rejected it. The relationship of these data to the effects of social status and residence area on attitudes towards participation is considered in the discussion of the individual situations.

The first situation was not significantly affected by the difference in social status. (The first situation deals with public transportation.) The score of .83 for this situation reported in Table 1 shows no significant over-all trend towards acceptance or rejection of participation. A survey of the comments of the respondents to Situation 1 suggests a single, pervasive trend that is responsible for the failure of social status and variations in residential contact to have significance. This trend was due to the fact that patterns of accommodation to joint use of public transportation by Negroes and whites had existed in Chicago for a long time. St. Clair Drake and Horace Cayton (2) point out that to accommodate to this situation requires only that one group tolerate the presence of the other. Comments from the data in this study show that the respondents frequently stated that "as long as they mind their own business, we will mind ours, and we will have no objection to sharing public transportation with them."

The second situation, which is directly concerned with attitudes towards biracial housing, has been significantly affected by differences in area of residence and social status. Since residential invasion involves a change in the racial composition of the housing in the invaded areas, it is to be expected that attitudes towards biracial participation in community housing will be a very sensitive indicator of attitudes towards the invasion itself. Table 2 shows the changes in attitudes towards biracial housing as a result of social status and residency differences. The highest participation score is reported

TABLE 2
TOTAL SCORES ON THE INDEX OF PARTICIPATION FOR ALL RESPONDENTS CLASSIFIED BY
STATUS GROUP AND AREA OF RESIDENCE FOR ATTITUDES TOWARDS
PARTICIPATION IN BIRACIAL HOUSING

Residency area	Social status group		
	Lower	Middle	Total
I	18	6	24
II	20	21	41
III	21	13	24
Total	59	40	99

in Area II. This suggests a strong tendency for rejection of biracial participation in housing to be greatest in the threatened area and less in the unthreatened and already invaded areas. A likely explanation for the highest rejection scores occurring in Area II is based upon the fear and anxiety with which the white residents viewed the impending Negro immigration. Most of the fears expressed by the white residents were concerned with what would happen in the event of Negroes taking up residence in the neighborhood. These fears, which were spontaneously expressed by the respondents, can be said to fall into two general categories: (a) That the neighborhood would become a slum. Under this rubric were the fears that the Negro would be careless in the upkeep of property; that they would bring disorder and prostitution to the neighborhood; and that the money and energy that the white residents had invested in their flats or property would be lost either because property values would go down or because they would have to leave an improved apartment. (b) That mixed housing would lead to mixed association between the sexes and eventually to intermarriage. As one member of the middle status group expressed her concern: "Once they start living together in the same neighborhood as whites there is a tendency for intermarriage. Then first a black and then a white child crops up. If the Lord wanted us to intermarry he would have made us all one color."

In addition to area differences in response, there were class differences in reaction to this situation. The situation with its emphasis on the breaking up of large flats into smaller share-the-bath units points up the fact that less fortunate Negro families would be the future tenants. It was expected that middle status whites would object more strenuously to this kind of participation than would lower status whites. The converse of this, however, was true. Table 2 shows a strong tendency for lower status whites to be more rejecting of this type of participation. The qualitative data suggest as a reason for this situation the fact that lower status whites were definite in their refusal to accept middle status Negro neighbors who were in a position to outbid them for their housing. This was brought out most strongly in Area III where whites and Negroes did in reality share adjacent flats. The complaint of the lower status whites was not primarily that they objected to Negro neighbors, but that if they were forced to give up their housing they would have no place to go. They felt that they were in direct competition with the Negro for the housing they already occupied. They stated that the Negro was willing to offer higher prices for housing and that the landlords were doing their best to get them (the whites) out of their flats.

One lower status housewife in this area summed up their predicament when she stated: "They are buying their apartments as co-ops—we are not planning to buy. We can't afford to. If they sold our apartment we would have to go. They are trying to get me out of here in the worst way."

The attitude of the middle status housewife was much less rejecting of participation. In the unthreatened area she considered participation with the Negro in lower status housing an abstract principle, and not infrequently she stated her belief that whites and Negroes should reside side by side. Nor did middle status housewives consider themselves in a life or death competition with Negroes for housing. They said that if the Negroes moved in they would move out. They were confident that they had the financial resources, and that there was enough middle status housing available for them to be able to do so. In addition, many middle status individuals who remained in their community after Negro residents had moved in, claimed that the neighborhood had not deteriorated and were more accepting of the principle of interracial housing. A middle status woman residing in Area III reported:

I have nothing against colored people moving in as long as they are decent. We have Negro neighbors next door and they are very nice. It's the riff-raff I don't care for—as long as they don't move in.

Situation 3, concerning participation with a Negro physician in the highly personalized relationship of delivery of the housewife's child, was not affected by status or area differences. Many housewives expressed preference for a white physician, but most were ready to use a Negro's services in an emergency. The fact that the two major variables had no effect on attitudes towards interaction with a Negro physician suggests that the determinants of the attitude towards this situation lie outside the effects of social class and residential contact. A review of the data on this situation indicates that the respondents perceived the relationship with the physician especially in an emergency as a highly formal one (the physician is thought of as an extension of his scalpel) in which social contact is minimal. Therefore, attitudes towards interracial contact would not have much effect on the respondent's preconceived attitude towards his interaction.

The data in Table 3 show that lower status whites expressed attitudes of rejection of participation in this situation more frequently than did mid-

TABLE 3
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING PARTICIPATION AMONG A
MIXED GROUP OF ADOLESCENTS AFTER SCHOOL HOURS: THE
RESPONDENTS ARE CLASSIFIED ACCORDING TO RESIDENCY
AREA AND SOCIAL STATUS

Residency area	Social status		Total
	Lower	Middle	
I	26	21	47
II	23	27	55
III	30	25	55
Total	84	73	157

dle status whites. Before discussing this finding, it is necessary to consider that this particular situation was rejected more frequently by all of the respondents than was any other situation (see Table 1). The statements expressing rejection of this situation are extremely clear cut. Most respondents feared it would lead to intermarriage and this is a fact they refused to countenance.

One lower class woman expressed the sentiments of the others very candidly:

This is the thing all white people are scared to death about. The girl upstairs and I have big arguments about it. She says, "You aren't tolerant, you don't want them to mix." I say, "You can make dates with them, but I don't approve." You know very well that if they go to school together there will be one couple out of the group that will get married.

8-331

3.9.79

The class and residency differences are primarily due to the more accepting attitudes of the middle status group living in Area I. In this relatively unthreatened area some of the middle status respondents stated that mixed relations were necessary if the problem of interracial relations was to be solved.

This type of response reflected the presence of an ideology of equality that was held by some members of the middle class. The acceptance of intermarriage was expressed only in the middle class and only in the uninvaded and unthreatened community. A possible explanation for these accepting attitudes lies in the fact that the unthreatened middle status group, considering invasion a remote threat, responded instead to the expression of their consciences that all forms of racial intolerance are wrong. The lower status housewife who was a resident of Area I, was, on the other hand, likely to experience some contact with the Negro due to greater likelihood that members of her family had employment contacts with them. Or, she was likely to have friends in other invaded communities who had communicated to her their fear of losing their apartments to Negro tenants. Being appraised of the conflicts that could result from invasion, she was concerned not with her conscience but with practical measures to avoid what she considered the danger of Negro in-migration.

This situation with its implication of intermarriage and complete breakdown of social distance was rejected by both groups in the face of contact, but upheld by some members of the unthreatened middle status group as an expression of their belief in an ideology of equality.

Situation 5, participation in a community in which the Negro residents were of a desirable middle class status, was introduced with the object of determining whether the middle status white housewives would have more favorable attitudes towards mixed housing if the Negro family was socially desirable. There were, however, no significant class differences in response to this situation. Table 4 does point to a tendency for some difference of response to occur in the different areas.

Area II shows a higher level of rejection of participation than either of the other two communities. The reason for rejection of this situation most frequently given by the residents of the threatened area was an expression of the fear that one Negro resident even if personally satisfactory would be followed by a host of others. This group tended to view the situation in terms of its furtherance of community invasion. Being against further invasion they were therefore against any Negro neighbors.

This attitude which was most prevalent in the threatened area was also

frequently voiced in the other two areas. It was expressed in its simplest form by a lower status housewife in Area I: "I don't see anything wrong about a person like this doctor mixing with whites. But he will bring others with him." Factors which operated against this point of view were the

TABLE 4
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING ATTITUDES TOWARD WHITE
ACCEPTANCE OF AN EDUCATED NEGRO NEIGHBOR

Residency area	Social status group		Total
	Lower status	Middle status	
I	15	14	29
II	22	20	42
III	18	13	31
Total	55	47	102

liberal ideology of some middle status respondents in Area I, and the recognition and acceptance of the superior social status of the Negro portrayed in this situation. The second factor operated in both Areas I and III. In Area I it took the form of a stating that if he was a decent, respectable person, maintained a decent home, and didn't run down the neighborhood, he should be permitted to move in. In Area III a few residents noted that people of this type had moved in and had kept up the neighborhood. Both these factors operating for acceptance were stronger in the middle status groups. Status differences, however, were kept down by the large number of respondents in both status groups who feared that the presence of one Negro family would attract many other undesirable ones.

TABLE 5
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING ATTITUDES TOWARDS WHITE
PARTICIPATION IN A SITUATION INVOLVING RELIGIOUS GUIDANCE
FROM A NEGRO PASTOR

Residency area	Social status		Total
	Lower status	Middle status	
I	17	12	29
II	18	21	39
III	27	17	44
Total	62	50	112

Table 5 shows that social status membership and area of residence have a tendency to affect the attitude of white housewives towards participation in a situation involving acceptance of religious guidance from a Negro pastor. The increase in scores favoring rejection in the area experiencing

Negro-white contact suggest that contact acts to limit acceptance of this situation. The reason given for rejection by the residents of Areas II and III did not themselves give evidence of any specific underlying cause for rejection. The reason most frequently expressed was "Our church has never had a Negro pastor." Some white respondents said that Negroes had a different, a more emotional concept of religion than they did. Frequently they said a Negro pastor was not enough like them to understand their problems. Since these reasons could have been used with the same frequency in the uninvaded area, but were not, they do not seem to be basic in explaining the difference between the areas. A few of the residents of the invaded areas made the point that if Negroes were admitted into their church, they would lose the church to a Negro congregation. The church represented to them a community stronghold; they reasoned that if the Negroes were denied the community churches they would be less likely to move into the community. As one housewife in Area III stated the problem:

I think that's right. They have their own churches. We tried to handle them that way out here. We told them to attend church in their own district.

It was this fight to retain the community church as a bulwark against Negro in-migration that seemed to be basic to the difference between the invaded and unthreatened areas.

Social status differences were also apparent in this situation. Lower status respondents showed a tendency for greater rejection than did middle status respondents. Many middle status housewives qualified their attitude towards participation by stating that if the pastor were qualified they would accept him. This approach was very infrequent among the lower status groups. The middle status individual frequently showed more consideration for the abilities of the individual Negro pastor, and some appreciation of the situation he would face in a mixed community. This attempt to "see the other fellow's predicament" was very infrequent among the lower status respondents.

This situation was designed so that the housewife would have the opportunity to express her attitude towards participation as the sole passenger in a Negro driven taxi in the late evening. The data in Table 6 reveal a significant difference in the degree of acceptance of participation in this situation between the threatened and unthreatened communities. The residents of Area I frequently pointed out that their objections to taking a taxi unescorted and in the evening was real, but not confined to the Negro taxi

driver. Many of these respondents felt that Negro taxi drivers were capable and probably as moral as the white drivers. Many of these respondents stressed the fact that they had little experience with Negro operated taxis.

TABLE 6
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING WHITES' ATTITUDES
TOWARDS PARTICIPATION AS A PASSENGER IN A NEGRO CHAUFFERED TAXI

Residency area	Social status		Total
	Lower status	Middle status	
I	17	10	27
II	22	24	46
III	25	20	45
Total	64	54	118

The respondents in the invaded areas gave four reasons for rejecting participation. These reasons involved personal safety and fear of accidents, a statement that the Negro may be morally dangerous, an objection based on the belief that Negro and white drivers should not compete for white fares, and finally a refusal to ride that seemed to be the result of general feelings of hostility towards the Negro in-migrants. There are no significant quantitative status differences in attitude towards this situation; there are, however, a few qualitative differences that should be mentioned. In the preceding paragraph, fear of competition was pointed out as a reason for rejection. This reason was given primarily by lower status respondents. Middle status residents frequently stressed the carelessness of the Negro driver and pointed to their bad experiences driving through Negro neighborhoods as an example of this. Frequently respondents who expressed fear of being molested or robbed admitted spontaneously that they read of these things in the newspapers but did not know any people involved in such incidents.

The effect of residential contact seemed to have created a general unwillingness on the part of white respondents to accept this service from Negroes. Since residential contact did not appreciably increase the white residents' experiences in this situation, the increased rejection voiced by the respondents of Areas II and III seemed to be part of a generalized hostile reaction to the Negro invasion.

None of the differences that appear in Table 7 is significant. Neither area of residency nor social status membership seem to be effective in influencing white attitudes towards the participation of their children in a biracial play group. When these data were presented in Table 1, it was

reported that the low mean score of .52 for this situation indicated a generally accepting attitude towards it for all groups. This is in strong contrast with the highly rejecting response to Situation 4 dealing with the acceptance of a biracial adolescent group. The contrast between the data on these two situations poses a question as to the factors that have made for such antithetical responses. A review of the comments of the respondents on their attitude towards Situation 8 reveals a single predominant point of view which was expressed by many of the housewives.

TABLE 7
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING WHITE ATTITUDES
TOWARDS NEGRO AND WHITE CHILDREN PLAYING TOGETHER

Residency area	Social status		
	Lower status	Middle status	Total
I	7	4	11
II	10	9	19
III	12	5	17
Total	29	18	47

Basic to this point of view was the assumption that all children are capable of minor delinquencies. If, however, their parents are careful to discipline them, they will not be delinquent. The feeling was that the parent controls the child, and that a well disciplined child is not likely to be led astray by his playmates. The comments of a middle class housewife in Area I expressed the general feelings about this situation:

If a child will be bad he will be bad regardless of the neighborhood. I was brought up in a tough mixed neighborhood, yet most of the children were good—only some were bad. It's the upbringing the parents give the children that is important. The parents are to blame, whether the child is Negro or white doesn't matter.

The respondents put their faith in the prevailing cultural belief in the responsibility of the individual parents to instill in their children patterns of good behavior. Along with this point of view it was held that if the parents are successful, the children will not be easily subject to contamination through association with bad company. Because this belief was widespread among the housewives interviewed for this study, they felt relatively secure about the welfare of their young children even in the otherwise fearful climate created by residential invasion.

That the security engendered by this belief was not transferred to the parents' feelings about their adolescent children, especially their daughters,

is pointed up by the wide acceptance of the feeling that if adolescents are thrown together, the white boys and girls cannot be trusted to avoid sexual involvement with Negroes and that intermarriage may result. The first belief is very probably due to the wide circulation it has recently received in the popular culture. As Deutsch (1) points out, the theory that bad parents make delinquent children enjoys widespread popular acceptance in the American culture today.

The extreme condemnation with which Negro-white intermarriage was viewed by the white public, and the parents' loss of confidence in their ability to handle their adolescent children, are probably important factors which have made Situation 4 a more sensitive indicator of rejection of biracial participation than is Situation 8. It should be mentioned that there were a small minority of respondents who felt that the Negro child is morally inferior. The belief in this once popular racial stereotype was restricted to a very small group of respondents in this study.

TABLE 8
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING WHITE ATTITUDES
CONCERNING EMPLOYMENT OF A NEGRO HANDYMAN IN THE HOME

Residency area	Social status group		
	Lower status	Middle status	Total
I	10	5	15
II	8	8	16
III	12	7	19
Total	30	20	50

None of the differences reported in Table 8 are significant. Therefore, attitudes towards Situation 9, like Situation 8, seem to be relatively insensitive to the influence of social status and variations in residential invasion. The reason for this insensitivity will become more meaningful when it is seen in the light of the high acceptance score of .45 reported in Table 1. With these two facts in mind, one can turn to the qualitative data for answers to the following questions; first, why is the level of over-all acceptance of this situation so high? And second, why are the attitudes concerning this situation insensitive to status and area differences? The answer may lie in the number of favorable experiences reported by the respondents in which Negro handymen were reported as having done satisfactory work. These experiences seem to have been most important in creating an attitude of acceptance in this area. Most respondents stated that if a workman were reliable they would hire him regardless of his color. A few house-

wives mentioned that they would feel better if they were not alone in the house with a Negro workman, but most felt that favorable experience had decreased that fear. As one respondent in Area III stated: "The idea used to be that you couldn't trust them . . . but this fear is dying out."

The presence of a generally favorable attitude towards employment of a Negro handyman in the home, and the formal relationship between employer and employee with its rôle implications of superiority and dependency, were both acceptable to the white respondent. Their attitudes towards this situation were therefore subject to very little modification as a result of residential invasion.

None of the score differences in this table for social status or area of residence is significant as in the case of attitudes towards the employment of a Negro handyman. Attitude of employment of a Negro domestic generally expressed willingness to accept participation in this situation.

TABLE 9
TOTAL SCORES ON THE INDEX OF PARTICIPATION MEASURING WHITE ATTITUDES
CONCERNING EMPLOYMENT OF A NEGRO DOMESTIC

Residency area	Social status		
	Lower status	Middle status	Total
I	6	4	10
II	7	11	18
III	11	12	23
Total	24	27	51

One of the first things that stands out from the comments of the respondents is the absence of many of the racial stereotypes about colored workers. There was only one reference to laziness as a Negro trait, and this was a denial of it. In only two out of 90 cases were Negro maids rejected as being dishonest. Most of the respondents felt that they are good workers and are entitled to as much compensation as white domestics. The middle status respondents tended to base their acceptance on their personal experience with Negro help. One middle status housewife commented briefly and to the point: "I have a colored woman and I like her fine." Lower status housewives commented that Negro maids have just as much right to good wages as anyone else.

In only a very few cases was the hostility created by the residential invasion transferred to refusal to participate in this kind of situation.

The principal reason for the stability of the attitudes towards Negro domestics seems to be based upon two mutually supporting factors: first,

the pattern of employing Negro domestics has been with these people for many years and has satisfied, at least among the middle status group, their need for servants. Second, satisfactory experiences with these domestics has left a residue of positive feelings about them. It also should be pointed out as it was in the case of hiring a Negro handyman than this situation also involves a formal relationship with the whites in a superior and the Negroes in a dependent rôle. This type of a relationship is much less threatening to the whites than are the close social relations resulting from participation in some of the other situations.

An additional factor present among some of the lower status respondents was an identification with the Negro domestic. This identification was made with the Negro in the rôle of an employee who is entitled to a living wage. The above factors illustrate relationships which meet the needs encountered in the day to day living of the respondents and perhaps for this reason are stronger determinants of their attitudes towards these relationships than the derogatory stereotypes of Negro workers that were once prevalent.

D. CONCLUSIONS

Situations involving biracial housing, acceptance of religious guidance from a Negro pastor, and mixed adolescent groups were affected by both status differences and variations in residential in-migration.

Situations that were affected only by variations in residential in-migration involved the acceptance of a high status Negro as a neighbor and the attitude towards participation as a passenger in a Negro chauffeured taxi.

Situations that were unaffected by both differences in social status and in residential in-migration involved attitudes towards joint use of public transportation, towards Negro and white children playing together, employment of a Negro handyman, employment of a Negro domestic, and the delivery of a white infant by a Negro physician.

The principal factors that operated to influence white attitudes towards Negro-white interaction in these situations were:

1. Good previous experiences with Negro domestics and handymen were reported to the situations dealing with their employment in the home. These reported experiences were almost always accompanied by attitudes of acceptance of these two situations.
2. The presence of patterns of accommodation that seemed unaffected by in-migration. This factor is best illustrated by the stability of the accepting attitudes towards joint use of public transportation.
3. The presence of a specific threat to the traditional social distance be-

tween the two races. Strong attitudes of rejection were mobilized around the situations dealing with mixed adolescent groups. In the data of this study the majority of respondents verbalized their rejection of this situation in terms of their concern with possible intermarriage.

4. The presence of Negro-white competition for insufficient housing. This factor was especially potent in influencing rejecting attitudes among lower status whites. The absence of adequate low income housing in the Chicago area has resulted in a struggle between Negro and white for the quarters already occupied by the white residents. The high residential mobility of the middle status whites has, on the other hand, resulted in their moving away from the contested areas. The fact that this channel was open to the middle status group is probably of some importance in accounting for the decrease in rejecting attitudes towards the Negro by that group.

5. The presence of ideological conflict. The conflict between the ideal of equality inherent in the overall American culture and the white chauvinism of the ethnic group cultures operated in the direction of acceptance of the situations among middle status whites and rejection among lower status whites. This factor appeared especially influential in Area I where a great many of the middle status group expressed their acceptance of Negro-white interaction in terms of their belief in the equality of all groups. Some respondents were able to verbalize this conflict directly by stating that they wished to believe in the complete freedom of interaction between the two races, but that they were not able to accept participation in all the situations. Among the lower status respondents of Area III the influence of the ethnic group culture made itself apparent in the strong tendency of the respondents to blame the Negro for their housing difficulties, at the same time ignoring many of the other factors responsible for the situation. The almost complete absence of Negro stereotypes reported in the study should be noted here. Evidently the ethnic group culture did not operate in this study to produce an expression of these stereotypes.

In conclusion it should be stressed that these major factors and many others not definitive enough to be identified in the data were interacting with various strengths in each situation. It was the sum of these interacting forces that determined the attitudes reported by each respondent.

E. APPENDIX: THE NEWS ITEMS

Directions: Here are a group of newspaper articles that have to do with race relations. Read one and tell me how you feel about the situation described. (If there is a further question, I add "what would you do in this situation?")

1. *Southern Educator Stresses Yankee-Dixie Similarities*

Dr. Rupert Maybank, President of Sarasota University, speaking before the Illinois Education Association, presented some new observations on similarities and differences between the Northern and Southern customs with regard to discrimination in public transportation. He observed that Southern code requires that the Negroes sit separately in the rear of busses and street cars. He was impressed with the fact that in Chicago both groups could be seen traveling side by side. Yet he feels that he has observed a tendency for Whites to prefer to sit with Whites and Negroes with Negroes.

2. *South Side Tenants Rebel*

An angry group of tenants from Hyde Park brought Curtis King, Negro landlord, to court for attempting to evict them. He has recently purchased the building in which they live. Mr. King claimed they could move back after he had reconverted the four- and five-room flats into much smaller share-the-bath units. The judge ruled that Mr. King was within his legal rights to reconvert. Mr. Henry Bing, lawyer for the white tenants, commented that this type of procedure would rapidly reduce the Hyde Park area to a slum. Mr. King replied that his tenants could move out of the neighborhood if they wished.

3. *Second Set of Twins Born In Week*

For the second time in a week, Dr. Leonard Gardner, Negro obstetrical resident of City Hospital, delivered twins. "I guess I'm just lucky," said Dr. Gardner, "I happened to be on duty at the time Mrs. Newcomb came in." Mrs. Robert Newcomb, mother of the twins, gave birth three weeks early while her own physician, Dr. Walter Werner, was on vacation. When asked if any white patients have objected to his attending them "sometimes they do," Dr. Gardner said.

4. *PTA Group Concerned Over Negro-White Relations*

Last night's meeting of the Lincoln Junior High School P.T.A. was concerned with the problem of Negro-White relations. Parents have become increasingly worried about this problem as the growing presence of Negroes in the community results in a larger Negro enrollment at the school. The principal topic discussed was "what attitude shall we parents have toward Negro and White students developing friendships after school hours?" One parent expressed anxiety over the fact that her 13-year-old daughter was frequently in the company of Negro teen-agers.

5. *Planning Commission Obtains Expert*

The City Planning Commission is adding to its full time staff Dr. William Grace, formerly an instructor in architecture at Columbia University. Dr. Grace, a Negro, has recently purchased a frame house in the Hyde Park Neighborhood where he expects to reside with his family.

6. *Appointment of Negro Pastor Stirs Protest*

The appointment of Dr. Julian Banks, Negro clergyman, to the pastorate of the St. Albans Methodist Church has brought a protest from some of the White members of the congregation. One of these members pointed out that "we have nothing against Mr. Banks personally, but we are petitioning the bishop to send us someone more like ourselves."

7. *Jitney Taxi Driver Defends Their Operations*

Howard Moss, Negro Jitney driver, denies that the jitney taxi is strictly for Negro service. He states that he has often picked up White passengers. He did add, however, that at night, especially after 10 P.M., white women rarely ride his taxi if they are unescorted.

8. *Court Robs Cradle*

Juvenile Court Judge, George Baker, was astonished to see two six-year-olds standing before the bar of justice. The boys were Harry Jansen, white, and Jerry Hull, Negro. The two youngsters were passing a vacant lot on their way home from school when they decided to break the windows of an old truck that had been parked there for several weeks. The judge questioned the boys' parents, spoke warningly to the youngsters, and dismissed them. Mrs. Jansen, mother of the white boy, said they had had no trouble with Harry before, but that the changing neighborhood made it difficult for her to control him.

9. *Union Wages War On Jobbers*

Local Decorators Union urges South Side householders to employ Union help only. An increasing number of independent jobbers have appeared in South Side neighborhoods recently. Most of these self-trained decorators are Negroes. The Union warns householders to remember that these "handymen" who offer to paint your house, wash your walls, or cement your walk are neither well trained nor reliable.

10. *Chicago Housewives Don Aprons*

The U. S. Employment Service reports that the great increase in available defense jobs is creating a shortage of domestic help in the Chicago area. The Employment Service advises that if you wish to hold your Negro maid or cleaning woman you had best make sure someone isn't tempting her with better wages and more privileges.

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THE PATTERN OF POSTPONABILITY AND ITS RELATION TO SOCIAL CLASS MOBILITY*

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A. INTRODUCTION

In the first Kinsey report (5) concerning male sexual behavior, some light is shed upon the relationship between sexual behavior and social class membership. One of the observations of that investigation is that the adolescent exhibits a pattern of sexual behavior characteristic of the educational (or social) group to which he will ultimately become affiliated rather than the group from which he has come (as indicated by his father's status). The Indiana investigators point out however that they have no evidence to indicate why or how certain individuals in the lower educational group come to differ from others in their sex patterns and concomitantly achieve a marked degree of social mobility.

Ginzberg (3) extends understanding of the phenomenon in suggesting that basic value differences exist between the upper and lower socio-economic groups and that the essence of the differences lies in the postponement of current gratifications. The more educated groups live a life, he hypothesizes, which consistently involves the postponement of current gratifications for the achievement of long range goals. This is not characteristic, however, of the less educated or lower socio-economic groups whose living involves essentially the seeking of current gratification since the future is seen as offering but little to them. The implication is clear that if a member of the lower socio-economic group is to achieve upper socio-economic class status, he too will have to acquire this postponing behavior pattern, particularly if he is to acquire the higher status by virtue of educational attainment since, as Ginzberg points out, the essence of college life involves postponement for the lower class youth.

The differences in sexual behavior that Kinsey found are explainable in these terms. From this framework it is evident that the upward mobile

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tions to social classes was accomplished by applying the U. S. Census classification to the Warner scheme with some modifications.³ The distribution of fathers' occupations among the college going group⁴ and the non-college going group was such that there were no statistically significant differences in the proportion of individuals appearing in any one occupational classification.

The selection of students with *IQ*'s of 110 or over was dictated by the need to make constant the ability to go to college, since going to college or not is the operational criterion for potential upward mobility in this study.⁵ In the Providence, R. I., sample (where only one intelligence test was used consistently) the Otis results revealed for the sample ultimately used a mean *IQ* of 119.6, *SD* 6.4, *N* = 43 for the college going group and a mean of 113.8, *SD* 3.2, *N* = 17 for the non-college group. The difference is significant at the 1 per cent level. The academic achievement of the college going group is also significantly higher than that of the non-college going group. The extent to which these differences affect the results of the study is not known and therefore makes the results only suggestive.

The subjects were selected from two high schools in New York City and four from Providence, Rhode Island; two locales where educational opportunities available make it possible for those in the lower socio-economic groups to get a college education free or at very little cost.

Of 215 records originally obtained 139 were chosen for study (71 from New York and 68 from Providence). The discarded records were of boys from the upper socio-economic groups or low intellectual capacity. In the final sample 86 were those who intended to go to college, 53 were those who did not.

D. THE COLLECTION AND ANALYSIS OF DATA

An open-end questionnaire (paper and pencil) was administered to the subjects which was designed to elicit responses to a variety of questions

³This scheme appears in greater detail in the original report. The distinction between occupational status and social class is recognized. Since the correlation between the two has been shown in the Warner investigations to be high there is justification for classifying occupational groups according to the social class scheme.

⁴The college going group is the group of high school students who *intend* to go to college. As a follow-up study conducted a year later showed, a very high percentage of those who said they intended to go to college actually did. In Providence, where the data were most complete, 95.3 per cent of those who said they would attend college did. Of those who stated they would not go to college 86.6 per cent actually did not.

⁵An Otis *IQ* of 110 was chosen since in previous studies (7) it has been shown that in an average Liberal Arts college 65 per cent of those with an *IQ* of 110 or over could be expected to graduate.

related to planning for a life career, school, work, leisure time activities, parental influence, values, etc. We are concerned in this report however with the responses to those questions that indicated differences in pattern between the college going and non-college going boys and which relate to the postponability hypothesis.

A topical autobiography relating to post high school plans administered one week prior to the administration of the questionnaire was used as a validity check for the responses to the open-end questionnaire. In one case, where the discrepancies were marked, the record was discarded from the sample.

The responses to the open-end questionnaire which were usually two or three sentences in length were treated by content analysis (1). Fifty records were first examined to set up the content categories for the responses to each question. The complete data were then examined in order to classify and tabulate the responses in all the records. If it appeared that new categories were needed such were added although this occurred rarely. Where appropriate, some categories were combined and the responses pooled. The responses were tabulated separately for college going boys and non-college going boys. The differences in frequency of response to each content category were tested for statistical significance employing the Chi Square technique and utilizing a 2×2 design. With one degree of freedom it was possible to compute the square root of Chi Square (denoted in the tables by z) and apply this statistic to the normal probability table (8).

E. RELIABILITY OF THE CONTENT ANALYSIS

In order that confidence could be placed in the results of the content analysis, which is a highly subjective technique even with the rules for classification made explicit, the identifications and classifications of the psychologically significant data were analyzed by an independent judge. Since a large number of such classifications were made in the larger study (over 7,500 responses) it was considered advisable to limit the reliability study to the part that required the most interpretation to classify. The resulting per cent agreement between the investigator and judge on unit identification (identifying the parts of the free response which were to be categorized) was 75.4 per cent. The agreement between the two on the classification of the units, once identified, was 91.5 per cent. The investigator and judge agreed in both identification and classification in 69.0 per cent of the cases. Subsequent to the independent judging a conference was held to discover the nature of the discrepancies and refine the rules for classification. After the conference there remained disagreement in 1.4 per cent of the identified and classified units used in the reliability study.

F. RESULTS

Testing of the postponability hypothesis was based upon the responses to questions designed to elicit information or attitudes concerning marriage, extent of social participation, possession of material goods, participation in school activities, occupational aspiration, and perception of self. It was expected, consistent with the hypothesis that the college going group would intend to marry later than the non-college, anticipate engaging in fewer social activities while in college, desire fewer material goods that stand out in the thinking of the adolescent—such as a car, and in general refuse the opportunity to avail himself of the satisfactions available to youth immediately upon graduation from high school.

Concerning marriage, it was found that 90.6 per cent of the combined college and non-college groups intended to marry. As to the "time they intended to marry" no clear cut difference between the groups seemed to appear (see Table 1). The college going group tends to express the time later as

TABLE 1
Question 31. If yes, when (do you intend to marry)?

Time of marriage	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. After college, or after school	24	0	29.3	0.0	3.98*
2. When able to support family or get a job or become a success	20	7	24.4	15.9	1.046
3. In mid or late 20 (in no less than 4 years)	20	16	24.4	36.4	.854
4. Within four years	1	4	1.2	9.1	.707
5. When meet the right girl	8	6	9.8	13.6	
6. Don't know, no response, or misc.	15	11	18.3	25.0	.954
Number of persons responding	82	44			
Number of statements	88	44			
Duplication	6	0			

*Significant at 1 per cent level.

"after college" or "when able to afford to" (implying that it will not interfere with college), and in the middle or late 20's. The non-college going group however tends to express about the same age range. Although there is a greater tendency among the college going boys to express anticipated time of marriage in terms of a plan (e.g., after college or when able to support a wife) the difference from the non-college going boys does not reflect

the objective fact that college graduates do as a group marry later than those who do not attend college (2).

The boys were asked how falling in love might affect their plans, presuming that the college going youth would indicate that it would not interfere with the plan to go to college and that the non-college boy might be deterred from his plans. The results indicate little difference between the groups. This may of course be a function of the ambiguity of the question

TABLE 2

Question 32. If you fall in love and marry, how will that affect your school or work plans?

Effect on plans	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Won't affect plans	37	27	43.0	50.9	.779
2. Will hinder them for a short while	0	1	0	1.9	
3. Will completely destroy them	13	4	15.1	7.5	1.318
4. Will still continue toward goal, but will make it more difficult, give something to strive for	9	4	10.5	7.5	.579
5. Will not get married while in school or college, or secure in job	14	7	16.3	13.2	.491
6. Wife will have to help or support	1	1	1.1	1.9	
7. Don't know, not sure, no response	12	9	14.0	17.0	.484
Number responding	86	53	100.0	99.9	

in that the meaning is different to the different groups. To the boy going to work getting married may have no effect at all on his immediate plans concerning work since he can probably get married whereas for the college going boy "having no effect" may mean he cannot get married under any circumstances so there would be no need to even consider it (unless of course his wife would support him—not an uncommon phenomenon in recent times).

As to the anticipated extent of social activities after high school, the college going person to a greater degree expects his activities will decrease, whereas the non-college going person anticipates they will not be affected. When asked specifically the amount of time each expects to spend socializing, the non-college boy gives significantly more of the responses which indicate greater participation in social activities. The college going person expects

to a greater extent that while in college he will confine his social activities primarily to the weekends or at most participating to the extent his studies will permit. Although the differences between the groups concerning dating on weekends is not statistically significant the other responses encourage the inference that the college boys pattern will involve dating primarily on weekends unless lack of pressure from studies permits more. The college group male does not, for example, as the non-college male, contemplate dating three, four, or more times a week which implies dating during the week

TABLE 3

Question 34. How much of your time do you expect you will spend on social activities while you are going to college or working?

Time will spend on social activities	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Once or twice a week	11	6	12.8	11.3	.256
2. Weekends	15	4	17.4	7.5	1.640
3. Three or four nights, or more often	8	20	9.3	37.7	4.059**
4. As much as possible, without interfering with studies or work	12	1	14.0	1.9	2.376*
5. Very little	20	3	23.2	15.1	1.16
6. Don't know; response not clear; no response	20	14	23.2	26.4	.4208
Number responding	86	53	99.9	99.9	

**Difference significant at 1 per cent level.

*Difference significant at 5 per cent level.

as well. If this difference does persist and becomes the pattern of behavior that will characterize the in-college and out of college youth, it may account for the Kinsey finding of greater masturbatory activity among the college youth and more heterosexual intercourse among the non-college. The college boy spends a major part of the week in classes or in the library, stimulated by the presence of girls but is unable to obtain heterosexual gratifications till the week-end without interfering with the need to prepare for his classes. The boy who works, if stimulated by the presence of women in the course of the day's activities, can "go out" during the week and achieve the desired gratification.

When asked what effect the draft would have upon their college or work plans a significantly larger group of college going boys indicated the draft would cause them to postpone their plans but not give them up (coll. = 56.9 per cent, non-coll. = 33.9 per cent). It is noteworthy how-

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ever, that the largest group among the non-college boys also said the same, although the proportion of the total is less than for the college going group.

When asked directly whether they were "giving anything up" or postponing by attending college or working, the only significant difference in response related to the opportunity to make money and achieve independence. The non-college group to a significant extent did not respond or said they did not know. A large number of persons in both groups stated they were not giving up anything or postponing in deciding upon their particular courses of action. This prompts the question as to whether the concept of postponement is valid or in need of some modification. The term postponement implies conscious intent⁶ on the part of the subject. Since the sub-

TABLE 4
Question 35. Often the choice of one alternative means giving up or postponing some other. What will you have to give up or postpone by going to college or work, and when do you expect you will be able to make them up?

Given up or postponed	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Tangible goods	3	0	3.5	0.0	
2. Getting married, dates, social activities	13	5	15.1	9.4	.969
3. Money, a job, work, independence	19	2	22.1	3.8	2.999**
4. Avocational interests, leisure time activities	10	4	11.6	7.5	.809
5. Nothing being given up	28	13	32.6	24.5	1.007
6. No response or don't know	11	20	12.8	37.7	3.433**
7. Response not clear	7	7	8.1	13.2	.964
8. The idea of going to college	0	3	0.0	5.7	
Number of statements	91	54			
Number of persons responding	86	53			
Duplication	5	1			

**Difference significant at 1 per cent level.

jects do not see themselves as putting off or postponing this does not in itself contradict the possibility that the subjects may exhibit behavior which the external observer may interpret as postponing. From the subject's own frame of reference, however, going to college involves the *satisfaction* of valued desires or is a step in the achievement of them rather than the de-

⁶Postpone = defer; to put off; delay. In Webster's *New Collegiate Dictionary*, 1949.

ferment of others. College offers satisfactions more significant to him than the satisfactions important to the non-college going youth. Were this not so, there would be considerably fewer students in college irrespective of social status.

However, this necessitates a clear distinction as to the meaning of the term postponement. It is suggested from these data that the term, if it is to be used at all, should represent what the observer infers concerning the behavior of the college going male rather than implying that it refers to the subject's own conscious decisions.

The differences between college going and non-college going groups are spelled out in greater detail in the responses to other questions. To one designed to determine for what things or activities the subjects get pleasure spending their money, it appears that although sports activities stand out most for both adolescent groups, social activities including dates, dances, etc., are less important for the college group (3rd in frequency) than for the non-college (2nd in rank order).

As to the possession of material goods, the college going boys expressed less the need of an automobile than did the non-college. On the whole, the college youth felt they wanted nothing more than their allowances or wages were able to provide them.

In considering the importance of school and related activities in the lives of the boys in each group a number of questions concerning this phase of adolescent life were presented. As to the activities enjoyed when not in school the only statistically significant difference obtained was in relation to reading. Significantly more of the college group boys indicated they enjoyed reading as a leisure time activity (college group = 30.2 per cent, non-college group = 15.1 per cent). This difference is of direct relevance because of the relation of reading to success in school or college. It suggests also one of the inherent sources of satisfaction provided by college training which will be valued by the college going boy and not so much by the non-college going boy.

In so far as school activities themselves are concerned it was already indicated that the college going boys exceed the non-college in academic achievement. As to extra-curricular activities such as sports and clubs, more college going persons participate in activities than is true for the non-college going boys. This finding suggests a modification of the observations made by Hollingshead in *Elmhurst's Youth* (4). In that investigation fairly clear differentiation could be made between social groups as to the degree of participation in school activities. On the basis

TABLE 5

Question 52. In which high school extra-curricular activities have you regularly engaged?

Extra-curricular activities	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Sports	37	12	43.0	22.6	2.443**
2. Clubs	32	7	37.2	13.2	3.059*
3. Service to school (Traffic squad, Service squad, stock room squad)	16	4	18.6	7.5	1.807
4. Honor societies (Math, Agriculture, Arista (N. Y.))	10	2	11.6	3.8	
5. Class officer	4	1	4.7	1.9	
6. School publications	14	2	16.3	3.8	1.474
7. Orchestra, chorus	10	4	11.6	7.5	.707
8. None, or no response	14	33	16.3	62.3	5.566*
Number of statements	137	65			
Number of persons responding	86	53			
Duplications	51	12			

*Difference significant at 1 per cent level.

**Difference significant at 5 per cent level.

of such data, he concluded that the lower socio-economic groups were characterized by their lack of interest and participation in school and social activities. The findings of this study imply support of that finding with the modification that those boys in the lower socio-economic groups who are potentially upward mobile do participate in those school activities and is in fact an integral part of their pattern of upward mobility.

When asked what the subjects thought of their fathers' occupation a sig-

TABLE 6

Question 46. What do you think or feel about the occupation your father is in?

Direction of feeling	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Positive	28	23	32.6	43.4	1.233
2. Negative	44	15	51.2	28.3	2.648*
3. Ambivalent	7	5	8.2	9.4	.264
4. Neutral	4	0	4.7	0.0	
5. Father Deceased	2	3	2.3	5.7	
6. No Response	1	7	1.2	13.2	
Number of persons responding	86	53	100.2	100.0	

*Difference significant at 5 per cent level of probability.

nificantly larger proportion of the college going group expressed negative feelings and a significantly larger group of the non-college group expressed positive feelings. From this it is inferred that the college going boys are much more rejecting of the fathers' occupation although this does not necessarily mean that the boys are more rejecting of their fathers. Although this also may be true, it is not possible to infer as much from these data.

Most of the parents of both groups are perceived by the subjects as approving their choice of occupation. As to friends' approval it appears that to a significantly greater extent approval is perceived by the college group of boys than the non-college. This relationship may be of importance in the

TABLE 7

Question 28. *What do your friends think or say about it?*

Friends' feelings about choice	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. Indicate approval or respect for choice	46	19	53.5	35.8	2.024*
2. They disapprove or are skeptical	6	6	7.0	11.3	.885
3. I have not consulted them; they say nothing; are indifferent	26	12	30.2	22.6	.832
4. Some approve—some disapprove	1	5	1.2	9.4	
5. They say I should make up my mind	1	1	1.2	1.9	2.133*
6. No response	6	10	7.0	18.9	
Number of persons in sample	86	53			

*Difference significant at 5 per cent level.

pattern of upward mobility since leaving one's social class (especially if the class is the lower class which may consider him "uppety") may require considerable "courage" and to feel that one has support from one's friends (who in all probability may be doing the same) may materially influence the will to go on.

When asked what the characteristics were they possessed that would contribute to their success, one finds significant differences between the two groups. The characteristics that stand out most among the college going boys are personality features. The college boys to a significant degree perceive their possession of certain personality characteristics (in particular, drive) will to a marked degree contribute to their success in life. Even though they objectively excel in ability and

TABLE 8

Question 23. Success in work or college requires certain characteristics of a person. What do you have that will be helpful?

Category	N Coll.	N Non-Coll.	% Coll.	% Non-Coll.	Z
1. <i>Capacity</i>	39	21	45.3	39.6	.0784
(a) Intelligence, ability to learn, reason	21	9	24.4	17.0	
(b) Scholastic ability, good student	11	3	12.8	5.7	
(c) Non-scholastic ability (musical, fast with hands)	7	5	8.1	9.4	
(d) Skills, non-social (acquired by experience)	4	4	4.7	7.5	
2. <i>Temperament</i> (even-tempered, lazy)	3	2	3.5	3.8	
3. <i>Character</i> (responsible, reliable, sincere, etc.)	15	3	17.4	5.7	2.009*
4. <i>Personality</i>	61	23	70.9	43.4	3.224**
(a) Drive (ambition, perseverance, will to work)	32	11	37.2	20.8	2.039*
(b) Able to postpone, satisfactions to study or work	2	0	2.3	0.0	
(c) Good mental health	1	1	1.2	1.9	
(d) Interest for work, study	8	3	8.3	5.7	
(e) Social skills (make friends easily, tact)	22	14	25.6	26.4	
(f) Desirable personality traits (patience, stable, extrovert, independent)	11	5	12.8	9.4	
(g) Values (desire to help others)	4	0	4.7	0.0	
(h) Sense of humor	7	1	8.1	1.9	
5. <i>Physical Appearance</i>	7	5	8.1	9.4	.843
6. <i>Evasive and no Response</i>	9	11	10.5	20.8	1.678
Number of statements	134	65			
Number of persons responding	86	53			
Duplication	48	12			

*Significant at 5 per cent level.

**Significant at 1 per cent level.

academic achievement the college going boys do not perceive these as contributing as much to their advancement as their drive and other aspects of personality.

Obviously, drive is an important characteristic for a potentially upward mobile group to possess and may account basically for many of the differences between the college going and the non-college going groups. This still leaves unanswered, as Kinsey has pointed out, how the individuals in one group come to possess the drive and those in the other not.

The occupational choices of the college going boys tend to be higher in status than those of the non-college boys. To a significant extent the college going boys intend to enter professional occupations (coll. = 80.5 per cent, non-coll. = 24.4 per cent) whereas a far greater proportion of the non-college boys intend to enter craft occupations (coll. = 1.4 per cent, non-coll. = 26.8 per cent). Boys in both groups expect to rise occupationally over a period of time. For the college going group the rise is expected in terms of becoming an executive or manager in a large enterprise or becoming a self employed professional worker. The non-college going youth expects he will rise to foreman or supervisory status in a large factory or business or become a self employed businessman.

Another difference that appeared was in respect to the amount of money each expected to earn after finishing his education. The amount for the college going group was significantly higher, although the significance of the differences tended to disappear when they responded concerning the money they expected to earn after 10 years. The amount, however, was still higher for the college going group.

G. SUMMARY AND CONCLUSIONS

This study was designed to determine whether in the lower socio-economic adolescent group differences in the willingness to postpone current gratifications exists between the potentially upward mobile and those who will remain in the lower social groups. It was felt that much of the behavior of those in the lower socio-economic group who are potentially upward mobile (by virtue of going to college) could be characterized as postponing of current gratification to an extent not true of the boys who do not go on to college.

Using an open end questionnaire, the responses to which were content analyzed, calculations were made of the difference in responses between those who intended to go to college and those who did not. The questions were designed to elicit responses concerning a variety of aspects of adoles-

cent life considered by the investigator to be related to the postponability concept. The statistical significance of these differences was also determined.

Differences were found in relation to a number of behaviors and attitudes which lead to the following conclusions:

First, however, in light of the limitations of the sample; the higher *IQ's* of the college going youth and the limited aspects of the phenomenon of postponability studied whatever conclusions concerning the differences are arrived at must be considered as tentative and suggestive.

1. Consistent with the results obtained it is concluded that the hypothesis concerning the relationship between the postponement of current gratification and potential upward social mobility *as originally stated* has not been verified.

2. The obtained differences between the college going group and non-college going group and the ways in which the boys perceive their own status leads to the conclusion that the concept of postponement of gratification with its implication of a conscious deferring process on the part of the college going boy from the lower socio-economic groups is in need of modification. Instead, it would appear that postponing is a phenomenon the observer introduces to explain apparent differences in behavior although the actors themselves do not perceive they are behaving in this manner. To the college going youth from the lower socio-economic classes going to college involves the *gratification* of values he has developed rather than a relinquishing of valued behaviors.

3. The results of the study tentatively suggest that *from the observer's frame of reference* there may exist a pattern of behavior which characterizes the potentially upward mobile boy of the lower socio-economic group.

He is more likely to marry later (2) than the non-college going youth although at the adolescent stages both groups *intend* to marry in the middle or late twenties.

The college going boy expects that college attendance will impose a limitation on social activity and we may infer confine it principally to the week-ends. This limitation is not imposed upon the non-college youth and may account for the differences in sexual behavior reported by Kinsey. It may also have an effect upon the age at marriage.

To a greater extent the college going youth, from the lower socio-economic group, derives gratifications from school activities, participates more in extra-curricular activities, and enjoys reading. This suggests that school plays an important rôle in the mobility pattern of the lower level youth who is upward mobile. It has been suggested that the school may be the source

for some youths of dissatisfaction with lower class status; many provide identification models, or act as an inculcator of upper middle class values. This finding is reinforced by the greater "rejection" of paternal occupational rôle among the potentially upward mobile boys.

Providing emotional support and reinforcement for the move from the social class may come from the peers of the college going youth who to a greater extent are perceived as having positive feelings toward their choice of occupation.

The intention of the college youth in respect to choices of occupation tends to be higher than that of the non-college youth. Professions predominate among the former; craft occupations among the latter. The college going group expects a significantly greater income upon starting work although both groups expect to keep achieving occupationally and economically. The rise in status among the college going group is anticipated by them to be to managerial or executive positions or to independent practice in the professions. The non-college going boys aspire to supervisory positions in factories or business or become self employed.

A significant factor that contributes to making the rise of the potentially upward mobile possible is the greater drive of that group, which they perceive as contributing most to their ultimate success. It may be hypothesized as a result of the findings of this study, that the drive in upward mobile boys derives from one or a combination of these factors: (a) "Rejection" of parental status or social environment (which the parents may themselves actually encourage). (b) Identification with school personnel who may represent the thinking of a different social class. (c) Introjection of different social values from the school curriculum or behavior patterns of school personnel. (d) Identification with peers who have themselves already become upward mobile.

4. Although this report has emphasized the respects in which the non-college groups and college groups differ, it is to be pointed out that in many other of their behaviors and perceptions the groups are strikingly similar.⁷

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DISCOVERING THE SOURCE OF CONTRADICTIONARY COMMUNICATIONS*

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A. INTRODUCTION

A considerable amount of data gathered by social psychologists, anthropologists, and experimental psychologists testifies to the influence of one's frame of reference on perception and judgment. It is known that two individuals may offer different, even contradictory, interpretations of the same stimulus. Relatively little attention has been devoted to the problems of how the individuals who offer the disparate judgments react to the diversity and of whether, and how, they seek to discover the source of the contradictions. It is with aspects of these problems that the present investigations are concerned. Specifically, we are interested in what happens when two children, who are furnished with different measuring standards (but who do not know them to differ), are assigned the task of measuring the same object in each other's presence. How will they react to their differing measurements? To what will they attribute the contradictions in their results? Will they discover that the source of the conflict lies in the measurement norms? We are also interested in studying the relationship of the process of discovery of the contradictions to the frequency of contradictions and to the complexity of task. Therefore, we used for objects of measurement one-, two-, and three-dimensional objects.

B. EXPERIMENTAL DESIGN

The design was a modification of that used in a previous investigation by one of the writers (2). Two children, seated facing each other at a table, were told that they were to be given a test of their ability to measure. Each child received a ruler. Unknown to them, one ruler was based on the metric system (metric ruler) and the other on the English system of linear measurement (linear ruler). The rulers were superficially similar in appearance, both being made of green plastic, having the same width (one-half inch) and the same length (six inches). They had originally been halves of one ruler. No words appeared on the rulers to indicate the nature of

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the scales, and all digits, which had given the number of inches or of centimeters, had been eradicated.

The children were told that they were to use one-quarter of an inch as their unit of measurement. They were to report how many of these units fitted into whatever they measured. When asked to indicate the markings on their rulers denoting quarters of an inch, almost without exception the child with the linear ruler responded correctly while the child with the metric ruler pointed to the lines denoting halves of a centimeter. In the few cases where such responses were not obtained, the experimenter pointed to these markings. When the children seemed certain of the units to be used, the experimenter presented the first of five tasks. (These tasks, which differed in the various experiments, will be described shortly.) One child was told to measure and to call out his answer so that the experimenter could record it; and then to pass the object of measurement to the other child who was to measure it too and to call out his answer so that it could also be recorded. In every task the child with the linear ruler (Subject *L*) responded first and the child with the metric ruler (Subject *M*) after him. A stenographic record was kept of all responses and comments.

Since Subject *L* was using .250 of an inch as his unit of measurement, while Subject *M* was using one-half of a centimeter or about .197 of an inch as his unit, correct measurements of the same object yielded different results. If the children did not spontaneously discover the source of disagreement, the experimenter was prepared to offer a series of suggestions. Referred to as Hints 1-4, they were as follows:

1. "Why did you disagree in your answers? What do you think caused the disagreement?"
2. "Why not watch each other remeasure."
3. "Suppose you exchange rulers."
4. "Close your eyes." (The experimenter placed the rulers side by side.) "Now, open your eyes and carefully examine both rulers."

The experiment was discontinued whenever both children became aware of differences in the measurement norms. It was not discontinued simply because a child suggested that the rulers might be different but only when the children made it clear that they recognized differences in the units they were employing.

When time permitted, a discussion was then held concerning which ruler was the "right" ruler, that is, which norm was one-quarter of an inch. To every pair of subjects the experimenter gave a brief account of the metric and English systems of linear measurement. The children's comments suggested

that none of them had previously known of the metric system or of the existence of any system other than the usual English system.

1. *Experiment I*

Each pair of subjects was shown a series of five white cards, one at a time. The card, four inches long and five inches wide, had a black-inked horizontal line centered on it. The line was $\frac{1}{4}$, $\frac{1}{2}$, $1\frac{1}{4}$, 2 and $2\frac{1}{4}$ inches long in the first through the fifth card, respectively. Based on quarters of an inch, correct answers were 1, 2, 5, 8, and 9 units. Corresponding answers based on the metric ruler were approximately $1\frac{1}{4}$, $2\frac{1}{2}$, $6\frac{1}{3}$, $10\frac{1}{8}$, and $11\frac{1}{2}$ units. Discrepancies between the two scales thus ranged from about one-quarter of a unit to more than two units.

2. *Experiment II*

The five cards used in this variation each contained a drawing of a parallelogram. The first card showed a square with a side $\frac{3}{4}$ of an inch long, the second card a square with a side $1\frac{1}{2}$ inches long; parallelograms 3 inches by $\frac{1}{2}$ inch, 2 by $1\frac{1}{2}$ inches, and 3 by $1\frac{1}{2}$ inches appeared on the third, fourth, and fifth card, respectively. Answers based on the linear unit were 3 by 3, 6 by 6, 12 by 2, 8 by 6, and 12 by 6. Corresponding answers based on the metric unit were approximately 4 by 4, 8 by 8, 15 by $2\frac{1}{2}$, 10 by 8, and 15 by 8. Differences introduced by the use of two measuring standards thus ranged from about one-half of a unit to three units.

3. *Experiment III*

Each pair of subjects serving in this variation was told to measure the lines which had been drawn in red pencil through three sides of a wooden block. Measurement of these lines yielded the dimensions of the length, width, and depth of the block. These dimensions were as follows for the first through the fifth block, respectively: 2 by $\frac{3}{4}$ by $\frac{3}{4}$, 3 by $1\frac{1}{2}$ by $\frac{1}{2}$; 3 by $1\frac{1}{2}$ by $1\frac{1}{2}$; 2 by 2 by $1\frac{1}{2}$, and 2 by $1\frac{1}{2}$ by $1\frac{1}{2}$ inches. In terms of quarters of an inch, correct answers were 8 by 3 by 3, 12 by 6 by 2, 12 by 6 by 6, 8 by 8 by 6, and 8 by 6 by 6. In terms of halves of a centimeter, correct answers were approximately 10 by 4 by 4, 15 by 8 by $2\frac{1}{2}$, 15 by 8 by 8, 10 by 10 by 8, and 10 by 8 by 8. Discrepancies between the two scales thus ranged from about one-half of a unit to three units.

C. SUBJECTS

A total of 120 children, from 10 to 12 years of age, served as subjects. Twenty pairs were tested in each of Experiments I through III. Attempts

were made to equate the ages of the members of each pair, so that in most cases their ages differed by no more than four months and in no case did they differ by more than one year. Of the 60 pairs studied, the subjects were both girls in 31 pairs, were both boys in 23 pairs, and were of different sexes in the remaining 6 pairs. Experimentation was carried out in an elementary school for 15 pairs, at a "Y" or settlement house for 25 pairs, and at the home of the participants for the remaining 20 pairs, with the various places used for each experiment.

D. RESULTS

1. *Concerning Agreement*

It will be remembered that for each task the child with the metric ruler (Subject *M*) responded after overhearing the other child (Subject *L*) report on the results of his measurement. With few exceptions, Subject *L* reported correct responses, based on quarters of an inch. With the exception of the cases to be noted below, Subject *M* reported correct responses based on halves of a centimeter, thus disagreeing with the overheard responses.

In seven pairs of Experiment I, Subject *M* gave the same response as Subject *L* in the first card and, in one pair, also in the second card. Comments made after the experiment suggest that the apparent conformity in the early cards resulted because Subject *M* was not certain about whether to give integral answers or to include the "small remainders," e.g., whether to report 1 unit, or $1\frac{1}{4}$ units, or "1 and a little more." On the last three cards of Experiment I, where the two scales yielded results differing by one or more units, only two pairs showed any conformity. One pair of boys, tested in school, both gave answers based on the quarter-inch unit. Subject *M* seemed not to be measuring; he simply reiterated the overheard responses. When the experimenter suggested remeasurement, on the pretext that not all their answers had been recorded, Subject *M* gave responses based on the half-centimeter scale. He later said that Subject *L* was a good pupil, who made out well in arithmetic tests, and therefore he "copied" him, but when the experimenter suggested remeasurement he thought it best to carry out the measurements independently.

In another case in Experiment I, Subject *M*, a new member of a club tested while attending her first club session, gave responses identical or similar to those of *L*, a member of longer standing. Remeasurement yielded no agreement beyond the first card. Apparently *M*'s eagerness to be accepted as a member of the club, and her desire to identify or conform with

the other girl's behavior, made for conformity in the initial measurement of the line segments.

Another case in this experiment revealed no agreement in the initial measurements of the five lines. But when the two girls were remeasuring (after Hint 2), Subject *M* agreed with the overheard responses in the first three cards, sighing with relief as she did so. To the perplexing problem of why there were disagreements, she had attempted the solution of eliminating the disagreements. Only the large discrepancies in the last two cards made her abandon this attempt.

Experiment II (parallelograms) revealed conformity during the initial measurement in two of the 20 pairs and conformity during remeasurement in one pair.

Experiment III (blocks) showed only one case of conformity: one subject reiterated the overheard responses in the second and third cards.

Considering the total of over 700 measurements (including remeasurements) jointly carried out by the 60 pairs of subjects in the three experiments, we find that in over 96 per cent there was no conformity with the overheard response.

2. *Reactions to Disagreement*

Reactions in each experiment during the initial measurement phase ranged from no comments to comments after every task. About one-third of the pairs in each experiment reported only the results of measurements. Most of these subjects evinced their surprise at the disagreement in non-verbal ways, usually by raised eyebrows, expressions denoting perplexity and bewilderment, by sharp glances at one another and at the experimenter, or by voluntarily remeasuring. But occasionally a pair of children showed no overt signs that anything untoward was occurring despite the fact that there was disagreement in every task.

Comments offered during the measurement phase tended to fall into various categories.

(a). Comments denoting surprise that they were getting different answers and exclamations that something was wrong, "fishy," or tricky.

(b). Questions directed to the experimenter asking who was right, who was wrong, who was closer, who was "winning," and whether they would find out their scores on the test afterwards.

(c). Remarks directed to the experimenter aimed at checking whether one or another subject was performing correctly the mechanics of measuring. For example, "Is he counting lines instead of spaces?"; "Am I be-

ginning at the right place on the ruler?"; "Does it matter in what order I measure the sides (of the parallelogram or block)?"

(d). Remarks which affirmed or cast doubt on the correctness of one's own or of the other child's reported measurements. For example, "You're stupid"; "You're a liar"; "You don't know how to measure"; "I'm probably wrong"; "I must have made a mistake"; "You must be correct"; "One of us is measuring wrong."

(e). Comments casting suspicion on the rulers. For example, "His ruler must be bigger" and "The rulers are different."

(f). Remarks suggesting actions to resolve the disagreement. For example, "Let me see your ruler" and "Let us watch each other measure."

3. *Discovery of Source of Contradictions*

It will be remembered that comments concerning possible differences in the rulers were not regarded as sufficient evidence of the discovery of the source of contradictions. The discovery was considered to have taken place when both children showed, by empirical comparison of the units employed, that they recognized the units of their rulers to be different. This discovery occurred during the initial measurement phase for 13 of the 60 pairs of subjects studied (immediately after the first task in two pairs, after the second task in one pair, after the third task in five pairs, after the fourth task or during the fifth task in five pairs). For 10 pairs, the discovery took place after the fifth task but before any of Hints 1-4 were offered by the experimenter. Five of these pairs spontaneously remeasured or offered the suggestions contained in Hints 1, 2, 3, or 4; that is, the children asked one another why they were disagreeing, they suggested that they watch one another measure, that they exchange rulers, or that they examine the rulers closely.

Sixteen pairs found the source of conflict after the experimenter asked why they were disagreeing (Hint 1). The promptness with which some children pinpointed the rulers as the source of disagreement, in response to the experimenter's question, suggests that they had suspected the rulers during the measurement period. Some of them had alluded to possible differences in the rulers during the five tasks (a suggestion which their partner sometimes rejected as ridiculous, e.g., "Don't be silly. The rulers are the same."), but had not verified the possibility empirically until after Hint 1. Some of those who had not previously mentioned the rulers claimed that they had suspected them but had been reluctant to voice their suspicions, e.g., "After the first problem, I figured the rulers were different but I

didn't want to say it in case I was wrong. But when you asked why we disagreed, I decided to say."

It was after Hint 2 (watch each other remeasure) that 14 pairs found the difference in the units. Four pairs did so after Hint 3 (exchange rulers) and two pairs after Hint 4 (experimenter placed rulers close together). One pair, composed of 10½-year-old girls participating in Experiment II, failed to find the source of conflict even after the fourth hint and the experimenter finally pointed out to them the difference in the units, eliciting delighted giggles from the girls.

In short, of the 60 pairs, the discovery of the difference between the units was made by 22 per cent during the initial measurement period, by 17 per cent after the last problem but before any hints were offered by the experimenter, by 27 per cent in response to Hint 1, by 23 per cent after Hint 2, by 7 per cent after Hint 3, and by 3 per cent after Hint 4, while less than 2 per cent (one pair) failed to make the discovery.

Typically, one child examined the rulers and then announced his findings in such terms as, "Your spaces are skinnier than mine," "My units are bigger than yours," "My ruler has more units than yours," or "I have 25 units and he has 31." The other child then verified the difference. In the majority of pairs the difference in the rulers was first hypothesized by one of the subjects, and then, after a varying length of time, verified empirically by the same or the other subject. In the minority of cases the discovery seemed to come about on an empirical basis, when the subjects happened to be close enough to compare the rulers (usually after Hints 2-4), without any previous overt allusion to differences in the rulers.

4. *Interexperimental Comparisons*

Each task involved only one measurement in Experiment I (length of the line segment), but two measurements in Experiment II (length and width of parallelogram), and three measurements in Experiment III (length, width, and depth of block). Thus the five tasks involved 5, 10, and 15 measurements in Experiments I, II, and III. Not only the number of measurements but also the discrepancy between the results of the linear and the metric scales tended to increase from Experiments I to III. In the first three tasks, for example, the average discrepancy was less than one unit in Experiment I, about one and one-half units in Experiment II, and over one and three-quarters units in Experiment III. In the five tasks the average discrepancy was about 1.30, 1.85, and 1.90 in the three variations. One might suppose that the greater number of measurements involved in each

task and the greater average discrepancy between the two scales would tend to make the subjects more certain of the correctness of their measurements, more inclined to suspect the rulers, and more likely to make the discovery in an earlier task, from Experiments I to II to III. But the results support the reverse of these expectations. From Experiments I to II to III we find an apparent decrease in a subject's confidence in the correctness of the measurements he reported, an increase in the mean time required for discovery, an increase in the mean number of measurements made prior to discovery, an increase in the number of hints required, a decrease in comments casting suspicion on the rulers, and an increase in the tendency to attribute the contradictory communications to incorrect sources. In short, as the dimensions of the objects to be measured changed from one to two or three, there was a tendency for subjects to be less certain of the competency of their measurements, to be less inclined to suspect the rulers, and to have greater difficulty in discovering the true source of the disagreement.¹

(a). During the initial measurement period comments were sometimes offered by a subject supporting the correctness of his measurement technique and of his reported results. During the same period comments were sometimes made by a subject which cast doubt on the competency of his measurements (e.g., "I must have made a mistake"). In Experiment I, nine subjects affirmed the correctness of their responses while only one subject doubted his measurements. In Experiment II, only three subjects overtly affirmed their measurements while one doubted his. And in Experiment III, comments more often implied suspicion that support of one's responses, with five subjects overtly affirming and seven doubting the competency of their measurements. Thus the ratio of supporters to doubters of the correctness of one's responses was 9 to 1, 3 to 1, and 5 to 7 in Experiments I, II, and III, respectively.

(b). Comments alluding to possible differences in the rulers decreased

¹To a child, a block may look more complex and appear to be more difficult to measure than a parallelogram or an isolated line segment. Likewise, a parallelogram may seem to be more complex as an object to measure than an isolated line segment. Moreover, the number of operations involved, such as the handling of the object, the turning of the ruler, the placing of the ruler, etc., increased in number as the dimensions of the measurement object increased. Furthermore, to be fully aware of the contradiction in Experiment I the subjects had only to keep in mind one discrepancy for each task whereas they had to keep in mind two or three discrepancies in the other experiments. Hence, while it is true that the actual measurements were always of line segments, it may be said that from Experiments I to III there was an increase in the complexity of the medium in which the line segments were imbedded and also an increase in the complexity of the total testing situation. Experiments are planned to unravel these factors as well as the factors of frequency of contradictions and extent of contradiction.

as the dimensions of the measurement objects increased. Such comments were offered by 10, 8, and 7 subjects during the initial measurement period of Experiments I, II, and III, respectively. The total numbers of such comments offered at any time during the session were 26, 20, and 12 in these three experiments, respectively.

(c). From experiment to experiment, there was a decrease in the number of pairs in which differences in the rulers were first hypothesized and then verified empirically, the number being 16, 13, and 10 in Experiments I, II, and III, respectively. (For the remaining pairs the discovery came about on the basis of empirical observation, usually after Hints 2-4, without previous overt reference to differences in the measuring standards.) It would seem that as the measuring tasks became more complex, it became harder for the subjects to conceive of the rulers as the source of conflict.

(d). A similar trend is found when we consider the number of subjects who, in response to the experimenter's question as to why they were disagreeing (Hint 1), attributed the disagreement to incompetent measurement on the part of one or both of the participants, thereby overlooking the actual source of the discord. Subjects who did so totaled 2, 5, and 13 in Experiments I, II, and III.

(e). From Experiments I to II to III there was a decrease in the number of pairs who discovered the source of conflict during the initial measurement period, with 6, 4, and 3 pairs reporting the discovery then in these three variations respectively.

(f). As the dimensions of the assigned objects increased, there was an increase in the number of subjects who required Hints 2-4. The numbers of pairs which made the discovery without these latter hints were 14, 11, and 10 in Experiments I, II, and III.

(g). As the dimensions increased, there was an increase in the total number of hints offered by the experimenter, the number being 17, 22 and 26 in Experiments I, II, and III, respectively.

(h). With an increase in the complexity of the measurement tasks, there was an increase in the mean time required for discovery of the root of the contradictions. The time ranged from 5 to 10 minutes with a mean of 8.2 in Experiment I, from 2 to 22 minutes with a mean of 10.7 in Experiment II, and from 8 to 25 minutes with a mean of 13.1 in Experiment III.

(i). From Experiments I to II to III there was an increase in the number of measurements completed by each pair. The average number of tasks per pair completed during the initial measurement period was between 4 and 5. But in view of the different number of measurements in each task

in the various experiments, this finding means that on the average about 5, 9, and 14 measurements were made by each pair during the initial measurement period. The results are even more striking if we consider the number of measurements (including remeasurements) made up to the point of discovery. The totals of such measurements were 121, 262, and 354 in Experiments I, II, and III. This means that the average number of measurements which a pair made prior to the discovery was about 6, 13, and 18 in these three variations, respectively. In other words, compared to the one-dimensional figure, twice as many measurements were required before discovery when two-dimensional figures were involved and thrice as many when three-dimensional figures were involved.

5. *Relation between Subjects L and M*

The subject with the linear ruler responded to each task prior to the subject with the metric ruler. Moreover, the dimensions were such that they could be expressed in terms of an integral number of linear units, but usually a non-integral number of metric units. Thus Subject *M* usually obtained a measurement that involved a "small remainder" and that differed from the result just reported by the other child. On the whole, Subject *L* seemed to be more certain of himself, more vocal, and somewhat more inclined to suspect and to discover the source of discord.

(a). During the initial measurement period comments (of any kind) were offered by 35 children with the linear ruler but only by 24 of those with the metric ruler. There were 17 pairs in which only Subject *L* made any comments in contrast to 6 pairs in which only Subject *M* commented.

(b). Comments alluding to possible differences in the rulers were made during the initial measurement phase by 17 subjects with the linear ruler but only by 8 of those with the metric ruler.

(c). Remarks affirming the correctness of one's own measurement, or questioning the correctness of the other child's, were offered by 12 children with the linear standard but only by 8 of those with the metric standard.

(d). Questions directed to the experimenter, checking whether the individual was correctly performing the mechanics of measurement (and probably reflecting a lack of confidence in one's measurements), were made by six subjects who had the metric ruler but only by three of those who had the linear ruler.

(e). The actual discovery of the difference in the units was made more often by Subject *L* than by Subject *M*, with 32 of the former and only 27 of the latter being first to announce the difference.

6. *Final Reaction*

Some subjects seemed to be rather pleased to find that the reason for their contradictory responses lay in the units employed and not in the faulty measurement of one of the participants. Their reactions are typified in such comments as, "No wonder we both got different answers! We both measured right," and "So that was what was wrong! Thank goodness. I thought I was nuts." It is perhaps significant that of the 120 subjects, only two expressed any anger against the experimenter. One *M* subject exclaimed, "You cheater!" and one *L* subject announced, "We were tricked." But the others calmly accepted the arbitrary nature of the experimental situation, conveying neither by their remarks nor by their facial expressions that they thought any unfair deal had been perpetrated. In fact, some of them seemed to have enjoyed the experience of participating in the experiment as typified by one girl's announcement, "The rulers are different. Gee, it was such fun."

When time permitted, the experimenter asked, "Who has the right ruler?" Infrequently this question was raised spontaneously by one of the youngsters. Some immediately designated the linear ruler as the "right" one because "I remember that quarters of an inch are fatter than his spaces and are like these in my ruler" or because "My quarters are too close together. His look more like inches" or because "My inch has four lines and yours has five lines so you have too many lines." Others could think of no way of deciding or rejected both rulers as "fakes" and not "real rulers." Some decided it was necessary to compare the rulers with a "real ruler" or a "big" ruler. The experimenter offered them an 18-inch ruler with linear markings on one side and centimeter markings on the other. What happened usually was that eventually the children decided that they were both "right" because they could find on the large ruler units comparable to those both had used. As one boy put it to his partner, "You have it right in your measurement and I have it right in mine." This served as an apt introduction to the brief exposition on the linear and metric systems which the experimenter gave to each pair.

E. SUMMARY AND DISCUSSION

Two children were assigned the task of measuring the same objects in each other's presence. Unknown to them, one child had been furnished with a ruler based on the English linear system (inches) and the other child a ruler based on the metric system (centimeters). The children were told to report the number of quarters of an inch which were contained in each

object measured. While the subject with the linear ruler (Subject *L*) used the correct unit, the subject with the metric ruler (Subject *M*) used one-half of a centimeter or about .197 of an inch. Thus correct measurements by the two subjects yielded disparate results in terms of the number of units reported, the discrepancy ranging from a fraction of a unit to more than three units. For each measurement, Subject *L* announced his result before Subject *M* had the opportunity to measure and to announce his finding.

In Experiment I, the subjects received five cards, each of which contained one horizontal line-segment whose length increased in the successive cards. In Experiment II, the children received five cards, each of which contained a drawing of a different parallelogram. The objects for measurement in Experiment III were five wooden blocks with red-penciled lines drawn through three sides. There were five distinct measurements in Experiment I, 10 in Experiment II (length and width of each parallelogram), and 15 in Experiment III (length, width, and depth of each block). The five objects were assigned one at a time. The experiment was discontinued when both children of a pair discovered that they were employing different units. If the children did not discover this of their own accord during the initial measurement period or soon after it, the experimenter was prepared to offer them a graduated series of hints. The first hint was simply to ask for the source of disagreement; the second was to suggest that they watch each other remeasure; the third suggested that they exchange rulers; in the fourth the experimenter put the two rulers close together.

Twenty pairs of subjects participated in each experiment so that a total of 120 children were studied. They were between 10 and 12 years of age, with the members of a pair chosen so as not to have more than one year difference between their ages.

Analysis of results revealed the following trends.

1. There was little tendency for Subject *M* to conform to the overheard response. Of all the opportunities to respond, less than 4 per cent represented conformity. This tendency toward non-compliance is in striking contrast to the compliant tendency found in some other studies involving diverse norms, particularly Sherif's classical study of social influences on the autokinetic effect (5). The difference in findings can probably be attributed to the fact that our subjects had an objectively given stimulus which remained before them for direct measurement (and remeasurement, if they so wished) with an objectively given standard or frame of reference, whereas the usual experiment on the autokinetic phenomenon involves "subjective" stimulus and frames of reference and does not allow for such direct co-

ordination of stimulus and standard. Sherif has offered a penetrating analysis of the formation and change of social norms, based on his findings. An analysis based on our findings, perhaps suitable for those social situations in which evidence and judgment standards are rather objectively given, would stress independent judgments, not seriously influenced by any tendency toward compliance or collusion.

2. Reactions during the initial measurement period, described in some detail, ranged from no comments whatsoever by either subject to comments after every task by both subjects. Comments usually referred to the fact that the subjects disagreed in their answers.

3. Discovery of the difference in the units varied considerably in terms of the time at which it occurred and the process whereby it was reached. Variations ranged from discovery immediately after the first task to no discovery even after the fourth hint. The fact that no discovery was confined to only one of the 60 pairs suggests that individuals can be made to realize that contradictory communications may result from differing standards.

4. The number of measurements in each task and also the average discrepancy introduced by the two scales increased from Experiments I to II to III. It would seem reasonable to expect that the greater frequency of contradictions in each task, and the greater degree of contradictions, would have helped subjects to discover earlier the true source of the disagreements. Yet the results unequivocally fail to support this thesis and instead reveal a diametrically opposed trend. As the number of dimensions of the measurement objects increased, discovery of differences in the units required more time, more measurements, more remeasurements, and more hints. This finding suggests that the ease of discovery of the source of contradictory communications need not be positively related to the frequency or extent of contradiction; discovery may be intimately related to the complexity of the situation, with greater complexity hindering discovery.

5. From Experiments I to II to III there tended to be a decrease in subjects' overtly expressed confidence in the competency of their own measurements and, concomitantly, a greater tendency to attribute the disagreements to incorrect measurements on the part of one of the participants, thereby overlooking the actual source of discord. The lack of self-assurance, of "sense of surety" (1, p. 82), may help to account for the greater difficulty in solving the problem of disagreements.

6. The subject with the metric ruler tended to be less sure of the correctness of his measurements, less vocal, less inclined to suspect the rulers,

and less likely to announce the difference in the units than the subject with the linear ruler. This trend may be a reflection of the interplay of various factors: (a) the child with the metric ruler was the second to respond to each task and therefore had the overheard response "hanging over him" as he made his own measurements; (b) by giving an answer which disagreed with the overheard response, the subject with the metric ruler was in effect introducing the contradiction; (c) the dimensions were such that the linear standard yielded exact, integral numbers of units while the metric standard usually yielded non-integral numbers of units; (d) possibly the metric ruler was less familiar (subliminally) in its appearance to the child than the linear ruler. In an attempt to untangle some of these factors, we propose to conduct three series of experiments. In one series, the subject with the metric ruler will be the first to respond to each task. In another series, the subjects will take turns at being first to respond. And in the third series, new dimensions will be used which yield integral answers for the metric standard but non-integral answers for the linear standard.

7. Most of the children seemed relieved to find that the disagreement was due to their using different standards rather than to their incompetence. When the experimenter acquainted them with the linear and metric systems it was found that none of them had known of the latter. And yet, within the short period of the experimental session, many of the children came to realize not only that there are various standards for linear measurement but also that one is not more "right" or "wrong" than another.

In short, most of the children regarded the contradictory communications as constituting a problem, one which they were able to solve, either of their own accord or with the experimenter's guidance, by learning to center on the objective standards. One wonders what would have occurred if the subjects had been more "ego-involved" about their responses and their frames of reference, if the latter had been related to highly prized personal or cultural values and norms, and if their responses had had greater significance for the course of subsequent behavior. Such issues would seem to call for intensive research in a relatively unexplored area.

(a). There is need for observation and analysis of what happens when an individual or a group is made aware that other individuals or groups report different perceptions or judgments of the same person, object, or event. Awareness may come about through direct intercommunication or through an intermediary source of communication.

(b). There is need for development of methods to help individuals to focus on the actual source of the conflict.

(c). Methods are needed for the evaluation of diverse frames of reference and for helping individuals and groups to realize that the other fellow's standards are not necessarily inferior to theirs. This does not require promulgation of the viewpoint that standards are necessarily arbitrary, that all are equally good or bad, equally appropriate or inappropriate. It does require acceptance of the viewpoint that the problem of a fitting standard or frame of reference in a given situational context may be a problem with more than one solution. For example, for measurement of the lengths of the line segments of the present investigation both the quarter of an inch and the half of a centimeter were appropriate units; some other linear units, say, a mile, would have been highly inconvenient, while still other units of measurement, say, the units of degrees used in measuring angles, would have been totally inappropriate.

Such research may conceivably constitute a step in the lessening of social conflicts and group tensions, be they on the small or the international scale (cf. 6). Such research may also have implications for psychotherapy; the maladjusted individual may profit both from learning that he perceives the world differently than others because of his particular orientation toward it, and from constructive attempts to restructure his social perceptions (3, 4). In short, the resolution of contradictory percepts or judgments contains problems which are challenging, on both theoretical and practical grounds, for many areas in psychology and in the social scene.

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A QUESTIONNAIRE STUDY OF PERSONALITY AND ETHNOCENTRISM*

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A. INTRODUCTION

Within the past decade considerable research ingenuity and effort has been expended in investigations of the personal, interpersonal, and situational correlates of ethnocentrism and prejudice. That the intensity and kind of ethnocentric attitudes and values accepted by individuals are a function of their own unique experiences, which in turn are reflections of the overall cultural organization and social structure, has been fairly well substantiated (1, 4, 5, 13). The basic assumptions underlying research on relationships between personal factors and ethnocentrism appear to be that (a) each individual will, granted the possibility of choice, be more receptive to that social ideology which has the most meaning for him and the most significant function within his overall adjustment, and (b) that any ideology, viewed psychologically, would reveal in its broad themes and its details at least some of the major dispositions of the individual holding it. Validating evidence for these assumptions has been offered by many researchers. According to their studies, the ethnocentrist appears to reveal a rigidity of reaction which is combined with a rather concrete mode of thinking (2, 10, 11, 12). Such persons also seem to have difficulty controlling sexual and aggressive impulses and tend to maintain distorted self perceptual views of themselves in relation to social reality (1). With respect to adherence to culturally prescribed normative behavior, a number of investigations (13, 15) have shown that ethnocentric and authoritarian modes of thought tend to be associated with a dogmatic, unquestioning acceptance of societal standards. The difficulty Levinson and Schermerhorn (8) encountered when they attempted to change undemocratic beliefs testifies only too poignantly to the basic adjustmental rôles of such attitudes.

To date, few investigators have attempted to employ standard objective-type questionnaires in their studies of personality and ethnocentrism. The wide variety of aspects of behavior such tests are purported to measure indicates that these procedures might be profitably employed to test many hypoth-

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eses formulated regarding personal adjustment and ethnocentrism. In addition, exploratory investigations utilizing such examinations may suggest fruitful areas in which to direct further research of this nature. The high reliability coefficients computed for most objective scales suggest that the probability of obtaining consistent reproducible results with these tests may well be higher than when more subjective interview and projective test data are analyzed even though these latter techniques might reveal more subtle and less evident features of personality and adjustment.

The present study represented an attempt to utilize certain standard objective-type personality questionnaires in the investigation of some of the personality correlates¹ of ethnocentrism, and to discuss the obtained findings with regard to previously conducted research and theory in this area.

B. METHOD

1. Subjects

One hundred and twenty-nine young male adult students in introductory psychology and public speaking courses at Purdue University were employed in this investigation.

2. Testing Materials

Measures of degree of ethnocentric belief were obtained by means of *The Total Ethnocentrism Scale*, also termed, *Public Opinion Questionnaire E*, or the E-Scale (1). Of the original 34 items, one question which dealt with anti-Japanese sentiment was not considered currently appropriate and was therefore excluded.

The personality questionnaires which were utilized were: (a) *The California Test of Personality, Secondary Series* (16), (b) *An Inventory of Factors STDCR, Revised Edition* (6), and (c) the Paranoia and Schizophrenia subtests of the *Minnesota Multiphasic Personality Inventory (MMPI)* (7). The California Test of Personality was designed to measure six aspects of personal adjustment and six facets of social adjustment. Summary scores of personal, social, and total adjustment are also obtainable from this scale. J. P. Guilford's *Inventory of Factors STDCR* is purported by its author to tap five areas of behavioral adjustment. These were derived from factor analyses of large numbers of objective test items, and have been termed, *Social Introversion (S)*, *Thinking Introversion (T)*,

¹Definitions of personality terms used here will be limited to the behaviors which the employed questionnaire items sample. For further information see References 6, 7, 16.

Depression (D), *Cyclothymia (C)*, and *Rhathymia (R)*. On the basis of previous work (1) it was decided to employ tests of "paranoid" and "schizoid" behavior. For this purpose, the Paranoia and Schizophrenia scales of the *MMPI* were chosen.

3. Statistical Analysis

The personality questionnaires employed provided a total of 22 scores which were intercorrelated by means of the Product-Moment method with four measures of ethnocentrism derived from the E-Scale. These latter scores consisted of a total E-Scale score which was computed in the manner suggested by the test authors. The three remaining scores derived from the E-Scale represented attempts by the writers to obtain measures which would relate to extremeness of pro- or anti-ethnocentric belief, and the tendency to maintain extreme stands on issues pertaining to ethnocentrism regardless of the direction of such attitudes. Respectively, these scores consisted of enumerating for each subject the number of extreme disagreements with ethnocentric statements (+3 scores), the number of extreme disagreements with ethnocentric views (-3 scores), and simply indications of extreme positions on these scale items (the total number of scores of three regardless of sign).

C. RESULTS AND DISCUSSION

Table 1, which summarizes the results of the correlational analysis, reveals that of the 88 product-moment coefficients computed between the E-Scale scores and the personality questionnaires 27 attained significance at the .01 level of confidence, while another 7 may be regarded as statistically significant at the .05 probability level.

Employing the test manual interpretations of the various traits purported to be measured by the questionnaires, the ethnocentrist as measured by the total E-Scale score, might be regarded as an individual who tends to be a thinking introvert, and who demonstrates poor emotional control with a tendency toward depression. The coefficient of .39 obtained with the *MMPI* Schizophrenia Scale would indicate a tendency for ethnocentric thinking persons to possess schizoid personality trends. This result is not at variance with those cited previously with respect to Guilford's *STDCR* inventory, as descriptions of the schizoid personality picture such a person as withdrawn, depressive, and emotionally labile (3). It is interesting to note that the correlation between the E-Scale total score and the *MMPI* Paranoia subtest was not significant, for certain of the personality descriptions of prejudiced persons and generalizations regarding these patterns which have

TABLE 1
CORRELATION COEFFICIENTS OBTAINED BETWEEN THE E-SCALE AND VARIOUS PERSONALITY
QUESTIONNAIRES

Personality test factors	Total E-Score	Ethnocentrism Number of +3's	measures Number of -3's	Total of all 3's
An inventory of Factors <i>STDCR</i>				
S	.049	-.080	-.001	-.042
T	.437**	.045	-.117	-.086
D	.418**	.225*	-.249**	-.118
C	.515**	.377**	-.288**	-.075
R	-.295**	.342**	-.178*	.017
Minnesota Multiphasic Personality Inventory				
Paranoia Scale	-.028	.069	-.003	.033
Schizophrenia Scale	.390**	.324**	.117	.081
California Test of Personality				
Self-Reliance	-.001	.038	.131	.143
Sense of Personal Worth	-.260**	.039	-.029	-.007
Sense of Personal Freedom	-.011	-.126	-.101	-.160
Feeling of Belonging	-.127	-.044	.080	.052
Freedom from With- drawing Tendencies	-.291**	-.242**	.120	-.013
Freedom from Nervous Symptoms	-.401**	-.287**	.236**	.073
Total Self Adjustment	-.279**	-.172	.153	.055
Social Standards	-.345**	-.217*	.178	.002
Social Skills	-.142	.035	.111	.123
Freedom from Anti- Social Tendencies	-.377**	-.459**	.332**	-.202*
Family Relations	-.067	-.185*	-1.27	-.215*
School Relations	-.290**	-.265**	.133	-.012
Community Relations	-.105	-.062	-.022	-.053
Total Social Adjustment	-.327**	-.278**	.104	-.047
Total Life Adjustment	-.323**	-.237**	.139	.008

*Indicates significance at the .05 level of confidence.

**Indicates significance at the .01 level of confidence.

been presented by the authors of *The Authoritarian Personality* would lead one to expect a somewhat paranoid tendency on the part of these people.²

Interpretation of the significant coefficients obtained between the E-Scale total score and the subtests of the California Test of Personality revealed tendencies for the ethnocentrist to feel unworthy and personally inferior, to be sensitive and withdrawing in nature, and to regard himself as a rather nervous and physically disturbed person. Socially he might be considered as an individual who does not consider the rights of others, does not possess good personal control in social situations, and is somewhat anti-social in

²See pages 421-423 of Reference 1.

behavior. These latter interpretations would appear to support some of the contentions of previous investigators (1, 4, 5, 9), whereas the findings relating to the negative self-views of ethnocentric thinking persons are not consonant with the claims of Adorno and others (1), as they picture the prejudiced person as one who holds positive views of himself. If, as has been maintained (14), objective-type inventories can be regarded as self-rating techniques, all of the significant coefficients presented in Table 1 indicate that ethnocentrically oriented individuals tend to rate themselves negatively with respect to the personal attributes and behaviors sampled by the personality tests, thus all of the results of the present investigation could be cited as evidence not supporting the findings of the aforementioned researchers (1).

It may also be seen in Table 1 that none of the three derived E-Scale scores with which the writers attempted to study personality correlates of extremeness of belief with regard to ethnocentrism, correlated as well with the questionnaire scores as did the total E-Scale score. The similarity between the significant correlations obtained by the total E-Scale scores and the derived measures may be partially explained by the magnitude of the correlations obtained among these four scores. These are presented in Table 2.

TABLE 2
INTERCORRELATIONS OF E-SCALE SCORES

	Total E-Score	Number of +3's	Number of -3's	Total of all 3's
Total E-Score	.910**†	.676**	-.755**	-.351**
Number of +3's			-.155	.372**
Total of all -3's				.828**

*Indicates significance at the .05 level of confidence.

**Indicates significance at the .01 level of confidence.

†This is the reliability coefficient of the E-Scale which is given in (1).

The fairly high coefficients obtained between the total E-Scale score and the numbers of +3 and -3 tallies, and between the number of -3's and the total number of 3's indicates that we might expect similar results from the correlations involving the E-Scale total scores and the number of +3's with the personality test scores. The opposite results might have been expected of the intercorrelations of the number of -3 tallies and the personality findings. Similarly, it might have been predicted that the total number of 3's and the number of -3's would result in essentially the same correlations with the personality questionnaire scores. In essence, the foregoing expectations were borne out however, the majority of the obtained coeffi-

cients are low and predictively weak. The personality test manual interpretations of the scores indicate that the more extreme ethnocentric beliefs a person holds, the more emotionally unstable, depressive, and schizoid he tends to be. In addition, he appears to regard himself negatively with respect to his personal and social adjustment. On the other hand, the more extreme anti-ethnocentric beliefs a person holds seems to be associated with good emotional control, a non-schizoid outlook toward life, and desirable personal and social adjustmental trends.

It may be argued that the E-Scale derived score of the total number of tallies of three does not measure ethnocentric attitudes with regard to the direction of such beliefs, but rather by simply measuring extremeness of reaction to the E-Scale items, this score is actually concerned with a different facet of personality. Further research would be necessary to answer this question, however, in the present study, only two rather low but significant correlations were obtained between the personality scores and the total number of tallies of 3. The inventory test manuals present interpretations which would indicate that the more extreme one's beliefs are with regard to the E-Scale items, the more anti-social he is and the more undesirable are his familial relationships.

It may be seen from the preceding discussion that further research directed toward clarifying relationships between ethnocentrism and self-concepts, and behavior regarded as paranoid and schizoid, is indicated. Strong suggestions regarding the utility of objective-type personality scales in such studies is also provided by the present investigation.

D. SUMMARY AND CONCLUSIONS

One hundred and twenty-nine male university students were administered the Total Ethnocentrism Scale, The California Test of Personality, An Inventory of Factors *STDCR*, and the Schizophrenia and Paranoia subtests of the Minnesota Multiphasic Personality Inventory. Correlation coefficients were computed between four scores of Ethnocentrism and the 22 scores derived from the personality inventories. Thirty-four of the 88 coefficients computed attained statistical significance beyond the .05 level of confidence, however, the majority tended to be low and predictively weak. The personality test manual interpretations of the various inventory scores when applied to the obtained significant correlations indicated tendencies for ethnocentric-thinking persons to possess negative views of themselves with respect to various aspects of personal and social adjustment. In brief, these individuals revealed somewhat sensitive, schizoid, withdrawing, depressive,

and anti-social personality trends. On the other hand, positive self-views and more desirable social and personal adjustmental tendencies appeared to accompany the adoption of an anti-ethnocentric stand.

In conclusion, it is believed that though many valid criticisms may be directed toward objective-type personality questionnaires, such examinations may be profitably used to provide simple tests of hypotheses regarding personality and social belief. In addition, as has been stated earlier, such testing may also reveal directions to be taken with more refined and exhaustive research techniques.

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PSYCHOLOGICAL AND COMMUNICATIVE PROCESSES CONTRIBUTING TO PANIC BEHAVIOR*

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A. INTRODUCTION

Human behavior characterized as "panic behavior" or observed within "critical social situations" (18) has been investigated in various ways in the past. The various approaches used in such investigations are basically these: (a) critical or disorganized behavior is descriptively noted, a running report of the participants' behavior developed and observations culled from the material (18, 22). One of the best examples of this method is a report by Katz (11) on the effects of bombing; a more inchoate example is that of Sinha (22). (b) The disrupted behavior is considered a special case of the frustration (or deprivation) and aggression hypothesis in which individual subjects are either observed in a frustrating or stressful situation (6, 20, 21), or in which there is experimental manipulation of subjects under such conditions within either organized, long-term groups, or unorganized, short-term groups (8). Other experimental conditions have been facilitative and/or competitive work conditions (16, pages 694-715; 5); or, varied degrees of experimentally induced cohesiveness (1, 7). (c) Recently Mintz (15) has conducted an ingenious laboratory experiment directed specifically to the study of panic. The studies of Smith (23) and Leavitt (12) using rigorous experimental designs, contribute knowledge of group processes under less than optimal communication conditions, and should be included in our discussion.

The Lippitt and White (14) analysis of children's behavior under three different leader-member relationships throws considerable light on the varied effect of differing group atmospheres upon membership behavior, and is important to the study of panic behavior through implication although subjects were children. It would be wise to have comparable information for adults, as well. The studies by Smith and Leavitt investigated communication patterns which closely approximated Lippitt and White's three group atmospheres of authoritarian, laissez-faire, and democratic leadership. The results of the three studies are similar in some important respects, and appear

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to be reliable whether the communication process conducted over various kinds of channels is vis-a-vis or impersonal.

However, when one attempts to explain panic behavior, certain conceptual questions become evident. This condition is not the fault of the experimenters. They have been primarily interested in problems only indirectly concerned with panic-behavior. The variables they have chosen to investigate are perhaps not always the variables most important in the analysis of some other segments of behavior.¹

Another factor contributing to the lack of understanding of this problem has been the negligible amount of concomitant investigation of personality variables within such experiments. This leaves an entire area of behavioral determinants unexplored. It would be an invaluable finding indeed if the assumed nullification of personality variables and individual differences within group experiments or conditions were tested, if the personality variables that *were* being purposely held in abeyance in experiments were made more explicit, or if there was a clearer conceptualization of which personality variables did function within group processes. Results in experiments by Bieri (+), Scodel and Mussen (19), and Haythorn (10), to mention only a few more recently reported, cast doubt upon the "neutrality" of personality variables within this problem area.

What we wish to do in the following section is to explicate certain stimulus conditions and variables within which panic behavior is observed and with which it is related. We hope that once this analysis has been achieved, investigation into the personalities of persons displaying this behavior will gain additional experimental meaning and clarity.

B. DISCUSSION

Generally speaking, persons displaying panic behavior are said to display non-adaptive behavior (15). This statement needs clarification and more specification if it is to be both theoretically meaningful and more amenable to experimentation. As it now stands, the statement is little more than a non-participant's characterization of the behavior of those persons. While their behavior *may* appear to the observer as non-adaptive, such a statement says very little beyond the descriptive level and nothing about the perceptions, the assumptions, the plans, or the actually *attempted* behavior of the participants. Neither does this description speak of the stimulus conditions present and in reference to which these people are responding.

¹For a more complete and comprehensive discussion of such methodological issues and analysis of experimentation upon small groups the writer suggests Argyle's fine article (3).

Panic behavior may not be non-adaptive, but behavior highly adaptive in aim, although not always successful in achieving its aim. Needless to say, not all the many goal-directed situations in which people act are to be characterized as panic situations regardless of how emotionally fraught, dangerous, physically or psychologically harmful they might appear to be, or actually be for the participants of those stimulus situations.

It appears to the present writer that those situations in which panic behavior is displayed may be characterized by at least eight concomitant conditions. These are the following: (a) An immediate, personal threat to the individual. (b) A short duration. The perception of duration will depend, in part, on the degree of complexity of the occasion and the urgency of the threat (see *f* below) as well as the actual duration. But within the threatening situation the time available for decision making is known to be too short for the individual to consider fully many alternative patterns of behavior. He may be aware of obvious alternatives before him, but he is unable to compare and differentiate them to a satisfactory degree. This perception of alternatives merely hinders the decision making process; it does not modify the threat to be met. (c) The threat, if not satisfactorily reduced or checked, will be perceived by the individual as having irrevocable, long-term consequences for him and close associates with whom he is ego-involved. (Death would be an extreme point of a continuum going from the death of the individual to severe material damage.) Regardless of which extreme is thought to occur, the individual will see the threat in highly personal terms, and his behavior will be highly egocentric.

It would appear from the above three characteristics that the panic-situation was one that developed within a time span too short to permit any prearranged plans with which to meet it. Such a situation is of major proportions existentially. It affects very important aspects of the participant's life. If the threat is not only met, but checked before the more central portions of the individual's life-space (13) are injured or unbalanced, resolution of the resulting situation will demand a drastic alteration of long-term plans, goals, and previously learned behavioral technics relied upon to attain those goals, and maintain acceptable perceptions of one's self and status within the community. An example of such a far reaching phenomenon would be a fire in a small town that destroyed a large proportion of its business area,—threatening lives; putting many out of jobs, business; wiping out capital assets, etc. Nevertheless the three above characteristics are not enough to explain why it would be that only some persons might display panic-behavior.

Our fourth variable is derived from the above discussion. (d) The stimulus situation initiates behavior that essentially attempts to maintain the status quo against loss or extreme alteration rather than any personal or material aggrandization or incremental change. It would follow from this that (e) participants perceive a specific problem confronting them with the situation that needs to be solved immediately. The goal of this problem solving is clear; but the steps or best method to use (or even possible) are not clearly structured overtly or cognitively. The situation therefore lacks cognitive clarity (2) for the participants. Such a covert condition results in a lack of a clear mode of action and an inability to verbalize one's plan of action either extensively (to cover the majority of the actions needed or actually being taken) or consistently with some sort of ordered behavioral sequence present (rationally). This inability to verbalize (and rationalize) one's plans plus the fact that these plans are highly ego-centrally oriented, stand proportionately in the way of any intelligible communication of these plans. For in order for communication to be intelligible and effective it must be as overt as possible, conventional in the referent-meaning of its units (words, gestures, pictures, etc.) and unarbitrary and unambiguous in the sequential ordering of these units so that points of modifying emphasis convey to the communicatee the corresponding evaluations that the communicator intends (cf. 17, p. 228).

The degree of cognitive clarity any one participant within such conditions possesses is a direct function of at least three of the above variables. These are his initial understanding of the *problematic* situation at its beginning, the number of solutions present from which the individual may choose in making a decision of action, and lastly, the amount of time possible in which to select from among the alternative procedures, that one plan of behavior upon which the individual bases his subsequent behavior. This chosen alternative solution we call the participant's decision. Since the time range is short, once the participant decides upon one alternative, he is usually committed to it from that point on to the final resolution. This commitment is a factor in the exigence felt by the individual. It also adds to the desperation of subsequent behavior since this behavior represents to the participant his one possibility for security and solution.

Naturally as either the number of alternatives decreases and/or the amount of time allowed for decision-making increases, an individual's cognitive clarity should increase. Maximum clarity would be possible within a set of conditions where there is but one possible line of action open, and this one possibility is recognized. A condition of minimum clarity occurs where

there is an increasing number of alternative procedures beyond a contrasting dichotomy open to the participant, and the amount of time possible for decision-making decreases. The dimension of time-perspective and the exigency of the situation confronting the individual may both be functions of the personality involved. But as stated above we are at the present time not sure what the nature of the relationship is.

The writer does not feel that an explicit statement can be made at this time concerning various group conditions and the facilitation or hindrance in problem solving among *groups* of persons within the same conditions. To do so now would be indiscriminant and based on too little information concerning the conditions underlying the emergence of leadership, the importance of varying amount of identification among participants or the importance of the initial degree of rapport already established. Nor can we say very much about the presence and functioning of active sub-groups, and the psychological or physical isolation of an individual among the groups. These are major variables within group processes. While we recognize them, we do not feel adequate in stating their function within ongoing, threatened groups of persons.

These variables' function can only be speculated upon; their actual importance may be contradictory to what we might expect. For example, if the isolation between sub-groups within a panic situation were great and there were recognized leaders for these groups, the behavior witnessed may not only be an attempt to solve the emerging problem, but quite possibly an endeavor also to keep the other group(s) from solving the problem first and thereby obstructing the paths and means to solution, e.g., runs on banks and market crashes. Or the opposite may occur. Two psychologically isolated and hostile groups may cooperate in the face of impending catastrophe, disregard the exhortations of their nominal leaders, and establish a basis of shared experience upon which are based more friendly attitudes, e.g., N.A.T.O. Or it may be the case that . . . and so it could go.

The next important variable would be then the (f) alternate paths and modes to the solution perceived by participants which we mentioned above. This should be qualified. Within the situation sub-goals *may* be perceived by the participants. If these are attained they may lessen the finality and comprehensiveness of the final damage but none are certain to. This lack of certainty increases the anxiety engendered by deciding which will be the one attempted. This uncertainty also stresses the great need for time in which to think about and compare the alternatives.

If the present writer understands him correctly Mintz believes that

the variables of situation-ambiguity and the following one concerning communication are the main determinants in panic behavior. Without the consideration of other variables these two phases of the situation are not enough to differentiate between problem-solving under speed conditions and a situation in which we find panic-behavior occurring while the various participants are attempting to solve an important problem.

The next variable is concerned with communication. This communication variable permits participants to attempt various methods of meeting the demands of the situation with the aid of other persons. As this cooperative behavior appears feasible to the persons involved, so may increase their expectations and own confidence that they can meet the situation with a better solution than they alone could bring about. This variation in estimates deals specifically with communication among the participants of instructions, suggested solutions, or merely descriptions of the situation which supplement one's present understanding of the unfolding situation, and therefore, augments his own knowledge of conditions. Thus, related to communication is (g) the possibility of an individual or an organized group to manipulate and, to some degree, control the behavior of other persons nearby by means of communication.

An individual's behavior is determined in part by his cognitive clarity concerning the important relationships and variables involved. This clarity and comprehension is a dual function of the intelligibility of the situation for him and/or the intelligibility of other persons' communicated recounts and interpretations of the events to him. It would follow that any inadequacy within, or disruption of, the communication channels, or a critical ratio² of noise would result in a breakdown of communication between persons. Such a breakdown would confound the message's comprehensibility, and render inoperative those plans and solutions being coordinated through the communicative processes.

Implied within the above discussion is the eighth variable. (h) The vari-

²Intelligibility of communication may be looked upon as a function of either the ratio of noise to speech-sounds, or of the length and explicitness of the messages being communicated. Maximum intelligibility should prevail where the noise-to-speech-ratio is zero, and the length and explicitness of messages (the number of words allowed sent) is unlimited. Minimum intelligibility should prevail in cases where the noise-to-speech ratio is either .5 or thereabouts. Intelligibility of the communications should also decrease as the number of listeners relevant to the sender increases and the length of messages and the time allowed within which to communicate both decrease. Theoretically a condition of absolute unintelligibility could be reached, but it is believed that the futility of trying to communicate within such a condition would be so obvious that participants would not attempt any communication except for reasons of catharsis and/or desperation; e.g., anything from blaring radios to highly excited crowds at large sporting events.

able of interdependence (13) is perhaps the most important single condition present in any social behavior. The behavior of most of the participants within a panic inducing situation is highly interdependent. This relationship of interdependence is recognized and acted upon by the participants.

What has appeared to some observers as "emotional contagion" (9) might be conceptualized as behaviors (and the accompanying heightened psychophysiological correlates) of persons within the same situation, who perceive and react to it similarly. The stimulus situation has for participants the same distribution of forces. And the same possible consequences are perceived and interpreted as important and threatening by the majority of participants within the same existent conditions.

The structural properties of a group (and/or a psychologically meaningful environment) is better characterized by the relationships between the parts rather than by the parts themselves (cf. 13, Chapter 9). The panic-situation itself *is* structured by the relations between the participants and the above situational characteristics. It would follow that as either the relationships between the participants become more bound and interrelated by means of communication, or the relations between the various situational features become more clear in terms of the restrictions and dangers involved, the behavior of persons within that situation will become more interdependent and, proportionately, more similar, e.g., jams at doors in fires.

C. SUMMARY

By way of summary let us draw together the various variables that we have discussed above in a form that would allow future derivation of experimental hypotheses. Panic-behavior is a function of a highly stressful situation characterized by the presence of a sudden threat to the individual (or group) which occurs within a short span of time. This threat if unchecked or not solved immediately will have irrevocable, long-term consequences upon the ensuing behavior of the participants. Therefore, the behavior that occurs soonest after the perception of threat is of the nature of problem-solving and the maintenance of the status quo against loss of either a physical or social-psychological nature. This problem-solving behavior is complicated by the perception of alternative solutions, their ambiguous consequences, and is hindered by unintelligibility within the communication process. This last condition becomes increasingly important as the interdependency of all the participants increases, or participants become more isolated from the main body of persons involved within the threatening situation.

Implicit in the discussion are certain implied characteristics of the behavior per se. Panic-behavior itself will be characterized by a high state of anxiety and erratic and sometimes random behavior. That is, behavior that is not based upon a *consistent* and *coordinated* plan of action. Panic behavior is further characterized by the taking of risks (especially towards the later portions of the situation); and a high rate of irrelevant communication directed towards persons other than those nearby in spatial proximity and immediately involved, regardless of these persons' particular bearing on the individual's position; e.g., elliptical statements, swearing, cries, holophrastic sentences, and other verbalizations that do not convey any clear-cut referent-meaning to the auditors (as distinguished from the expression of emotions).

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MANIFEST ANXIETY AND PERCEPTUAL JUDGMENT*

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A. INTRODUCTION

Taylor (8) has recently developed an objective measure of "Manifest Anxiety." The scale has found its application in a variety of experimental situations, e.g., conditioning (6, 7). In these studies it was shown that those subjects classed as "high" in anxiety condition more readily than those subjects classed as "low" in anxiety. It has also been shown that anxiety produces a decrement in performance in learning and problem solving situations (9). Most of the reported studies have been concerned with the relationship between anxiety and "non-perceptual" tasks.

Our specific interest is in the relationship between "Manifest Anxiety" and the verbal expression of confidence in perceptual judgments. Hollingworth (2) has pointed out that confidence ratings are a function of: (a) difficulty of the situation, (b) completeness of the data presented, (c) accuracy of the reaction, and (d) mode of report. A negative relationship between the difficulty of the task and the confidence rating has been reported (3, 5). Fullerton and Cattell (1) believed that confidence was a personality trait. In their experiment they found that in many cases *Ss* were confident even though they were wrong in their judgments. Wolff (10) has recently presented evidence against a negative relationship between confidence and "Manifest Anxiety." Only one of several confidence measures, i.e., self sufficiency, was found to be significantly related to "Manifest Anxiety." Both the self sufficiency and anxiety measures were taken from the *MMPI*. In an extension of this study, Johnson (+) investigated the subjective feeling of confidence for the following tasks: (a) Angle judgment, (b) Brightness matching, (c) Line judgment, (d) Position of hand judgment, (e) Weight judgment, and (f) Figure recognition. He reported that the inter-task confidence scores remained relatively constant. Further, no relationship was found between these confidence scores and anxiety (*MMPI*). He concludes, however, that confidence "is a useful reference dimension in the study of judgments and choice."

The purpose of this study is to determine the relationship between "Mani-

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fest Anxiety" and the judgments of facial expressions. Our specific interest was in the performance of *Ss*, differentially categorized on the basis of the Taylor Scale, on judgments of stimulus figures which remain constant, although *S* has been led to believe that such changes would occur.

B. PROCEDURE

1. Subjects

Twenty-six *Ss* were selected from two sections of Introductory Psychology courses at the University of Maryland, on the basis of their scores on a modified 50-item form of the Taylor Anxiety Scale. A "high" anxiety (*HA*) and "low" anxiety (*LA*) group was formed. Scores for the *HA* group ranged from 26-32, while for the *LA* group the score range was 1-10. No statistically significant sex differences existed in the anxiety groups. The *HA* group was composed of 7 male and 6 female *Ss*, while the *LA* group had 4 male and 9 female *Ss*.

2. Apparatus and Method

Each *S* was shown, under tachistoscopic presentation of .13 sec., a schematically drawn outline of a human face. The face, drawn on a 8½ x 12 in. white card, consisted of circle (6.5 in. diam.) within which three *straight* lines were drawn. Two of the lines, 1.5 in. long, were placed in the eye-brow positions. The other straight line, 2.5 in. long, was drawn in the mouth position.

Each *S* received 20 successive tachistoscopic presentations. After each presentation he was asked to state whether the face appeared to be "smiling" or "frowning." In addition he recorded his confidence, on rating sheets, for the accuracy of his judgments. The rating sheets consisted of 20 "five-point" rating scales. The five points on each scale were: 0 per cent, 25 per cent, 50 per cent, 75 per cent, 100 per cent, representing a confidence continuum of from a pure guess (0 per cent confidence) to an absolutely sure (100 per cent confidence) response. After each response of either "smiling" or "frowning," subject circled the percentage which best represented the confidence he had concerning the accuracy of his judgments.

3. Instructions

Through the use of verbal instructions and false auditory cues, *S* was led to believe that each of the 20 facial presentations could be characterized as either "smiling" or "frowning." Verbal instructions were given to the effect that each face differed *only* in terms of the mouth line. He was told

that for each face the mouth line curved either "up" or "down." Through the use of demonstration cards *S* was shown that when the mouth line curved "up," the face appeared to be "smiling," and when the mouth line curved "down," it was demonstrated that the face appeared to be "frowning." Thus *S* was led to believe (and apparently accepted this to be true) that each of the 20 facial presentations *would* either be "smiling" or "frowning." Further, he was shown a series of seven sample stimuli, five of which contained faces with *straight* mouth lines. The other two cards contained mouth lines which curved slightly "up" and "down." It was pointed out that it is often difficult to discriminate the direction in which the mouth line curves. Further, it was difficult to tell if the faces are "smiling" or "frowning." False auditory cues simulating the changing of the stimulus cards were given to further create the impression that the face for each presentation was being changed. *S* was told that the ability to correctly judge facial expressions was correlated with intelligence. To facilitate a more realistic, informal rapport with *S*, the verbal instructions were memorized.

C. RESULTS AND DISCUSSION

In regard to the frequencies of reported facial expressions, the *HA* group gave a total of 127 "smiling" and 133 "frowning" responses. The *LA* group gave a total of 120 "smiling" and 140 "frowning" responses. Both groups saw more "frowns" than "smiles," and the *HA* group saw more "smiles" and less "frowns" than the *LA* group. None of these differences are significant at the .05 coefficient of risk when tested by the X^2 test.

In regard to expressed confidence, the mean per cent confidence of the *HA* group was 57.5 ($SD = 9.3$), while that for the *LA* group was 49.7 ($SD = 11.7$). The *HA* group had more confidence in their judgments, together with less variability. The difference in confidence ratings is not statistically significant ($t = 1.86$).

When a count of the frequency of "guess" and "absolutely sure" confidence ratings for the *HA* and *LA* groups was made, some interesting differences were found. For the *HA* group there were 21 ratings at the "guess" level and 37 at the "absolutely sure" level. For the *LA* group there were 31 "guess" and 21 "absolutely sure" ratings. The *HA* group made more "absolutely sure" and fewer "guess" ratings of confidence than did the *LA* group. The differences between the groups was significant at the .05 coefficient of risk ($X^2 = 6.03$).

To the extent that we can assume that the experimental situation is similar to actual perception of facial expressions, it may be concluded that "mani-

fest anxiety" is not a significant "predisposing" determinant in the perception of facial "smiles" or "frowns."

The most interesting finding is the obtained differences in confidence between the *HA* and *LA* groups. The *HA* groups were slightly more confident in their judgments. The differences were not statistically significant. It was found that when the *HA* and *LA* groups were compared only in terms of their "guess" and "absolutely sure" responses, the *HA* group gave significantly more "absolutely sure" and less "guess" responses than the *LA* group. Speculations concerning this result are a bit premature in view of the limited information available. We believe that the confidence dimension warrants further study in regard to its relationship to other related dimensions.

D. SUMMARY

This experiment was an attempt to investigate the effects of Manifest Anxiety on the judgment of facial expressions. Undergraduate students ($N = 26$) were selected on the basis of their scores on the Taylor Anxiety Scale and divided into a "high" and "low" anxiety group ($N = 13$ each). *S* was shown 20 successive tachistoscopic presentations of a schematically drawn human face. He was asked to state if the faces appeared to be "smiling" or "frowning." Confidence on the accuracy of the percept judgments were made by *S* for each response.

The results indicate no significant difference between the high and low anxiety groups either in terms of the perception of "smiles-frowns" or expressed confidence. There was a significant difference between the high and low anxiety groups in the frequency of "guess" and "absolutely sure" confidence ratings. The high anxiety group gave significantly more guess and less absolutely sure ratings than the low anxiety group.

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THE ESTIMATION OF ONE'S OWN BODILY TRAITS*

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A. PROBLEM

Recent investigators of perceptual behavior have found that their assumptions concerning the relation between perceiver and thing perceived need to be qualified by reference to the individuality of the perceiver and the significance of the stimulus (2, 6, 7, 8, 11). An aspect of this discovery has been the recognition of the "self," objects, and other people as constituting different sets of perceptual objects (1). The present study was designed to test the validity of this distinction.

Our general assumption has been that perception of the self is influenced by the presence of personal attitudes and values that do not attach to other persons or objects (4, 5, 9, 10, 12, 14, 16), as well as being affected by one's interest in social stimuli, as such.

To obtain measures of self estimation, as well as measures of estimation of another person, and of objects, a calibrated, flexible mirror was employed. By means of this device (to be described below), it was possible to investigate errors made in recognizing one's own true facial proportions from among a graded series of distorted images, relative to errors made in recognizing the true proportions of another person's face, or those of objects. It was hypothesized (a) that recognition of the true proportions of one's own face is subject to considerable error; (b) that the error in recognizing one's own face is a fairly stable one; (c) that errors made in estimating the proportions of one's own face tend to be greater than errors made in judging the proportions of another person's face, or of inanimate objects; and (d) that individual differences in magnitude of error in the self estimation test are correlated significantly with differences in Rorschach *H%* (human content), *Hd%* (detail of a human), and *M%* (human movement), on the assumption that these Rorschach signs betoken a general interest in people, and possibly in the self perceived as a social stimulus.

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B. METHOD

1. *Subjects*

Twenty-one male and 21 female undergraduates at a small, midwestern liberal arts college served as Ss. These students were enrolled in introductory psychology courses, and volunteered to participate in the current study. All Ss were in their late teens or early twenties.

2. *Apparatus*

The apparatus used consisted of a 20" x 20", slightly flexible mirror (.125 Plexi-Glass).² Normally, this type mirror is cut from large sheets and is designed for ordinary commercial use as a dressing room mirror. The mirror was mounted in a heavy, upright wooden frame. It was held in place in its frame by grooves in the top and bottom of the frame. The sides of the mirror were contained in precision-cut channels, the width of each channel being one-half inch, accurate to about .001 of an inch. Within these channels, the mirror was free to bend slightly at its center, on the horizontal axis. Such curvatures were cylindrical, producing changes only in the vertical dimension of reflected images. The grooves at the top and bottom of the frame were one-quarter of an inch in width, and held the mirror snugly, though not immovably. A screw, about one and one-half inches in length, was passed through a hole in the back of each channel, at points midway along the mirror's edge. Screws were passed similarly through the front of both channels. By turning the screws at the back of the mirror clockwise, and those at the front of the mirror counter clockwise, the mirror could be bent along its center horizontally so that a convex surface was visible to anyone facing the mirror. By turning the screws at the front of the mirror clockwise, and the screws at the back of the mirror counter clockwise, a concave surface could be presented. Curvatures created in this manner were maintained in a fixed position by the pressure of the screws against the front and back of the mirror, and were so slight as to be unrecognizable. A razor-sharp steel marker was mounted alongside of each screw, at the back of the mirror. By holding the edge of a fine steel ruler against a designated point at the center of the mirror's edge, a reading could be obtained in 32nds of an inch, of the extent to which the mirror was being bent. By means of such readings, the mirror could be adjusted over a range of 13 32nds of an inch. This range of settings, with its corresponding curvatures, included six positions in which a convex surface could be presented, and six

²Parallel Manufacturing Corp., New York, N. Y.

positions showing a concave surface. The mirror could be adjusted also to one position in which it was absolutely flat. In this latter position, the mirror provided an image comparable to those obtained with ordinary, commercial glass mirrors.

To ascertain the objective mirror-image correlates of the 13 settings, a series of photographs was taken of the reflection of a vertical ruler in the mirror. The reflection of the ruler was photographed for each of the 13 positions of mirror curvature, and several photographs were taken of each position. Examination of the prints showed that the width of the ruler remained the same for each setting of the mirror. The lengths of the ruler varied with each setting. The scale of 13 settings was found to correspond to 13 different lengths of the ruler, with each length differing from each adjacent length by one-twelfth of the total range of variation. That is to say, the scale of 13 images was composed of equal step intervals throughout. It was found that the extreme images were either 12 per cent too long or too short in relation to the neutral image. All increments or decrements within the scale were in multiples of 2 per cent in relation to neutral, with the longest image exceeding the shortest by 24 per cent. A numerical value was assigned to each of the 13 settings, in terms of its distance in 32nds of an inch from neutral.

3. Procedure

a. The estimation of one's own face. *S* was seated in a chair facing the mirror, which was held upright in its stand. The back of *S*'s chair was at a distance of 1m. from the mirror. Since sitting height differed for different *S*s, a series of identical, hard, flat pillows was provided for short *S*s to insure that eye level would be in alignment with the center of the mirror. On either side of *S*'s chair, and extending to the sides of the mirror, black curtains were suspended from a height of about 2m. from the floor. A similar curtain was hung about 1m. behind *S*'s chair. The mirror itself was draped in black, so that only its reflecting surface was visible. Curtains were suspended from a height of 2m. down to the top of the mirror, and fastened to it. By means of this arrangement, the experiment could be carried out in a sort of enclosed corridor, in which *S* could see only the folds of curtains. He had no familiar reference points the reflection of which he could observe in the mirror. *E* stood behind the mirror, and could not be seen by *S* at any time during the experiment. The screws by means of which the mirror was adjusted were invisible to *S*, being covered by curtains that draped the mirror. *S* had no means of knowing how his image in the mirror was being

altered, since the slight curvatures in the mirror were not noticeable. *S* could see his face and shoulders in the mirror.

Two 150-watt electric bulbs were the only sources of illumination in the experimental room. The amount of reflected light at the surface of the mirror was one foot-candle, as measured by a light meter. Adjustments of the mirror were made by *E* only when *S*'s eyes were closed.

Immediately before testing *S* was allowed to look at his own face and shoulders in a "true" mirror for 30", outside the experimental room, and under normal lighting conditions. *S* was told that his memory for his face would be tested. He was then seated before the adjustable mirror, which was covered with a large sheet of paper. *S* was asked to close his eyes and the following instructions were read to him: "This is a test of how accurately you can recognize your own true image in a mirror. In just a little while I will show you how we will test this." The paper covering was then removed from the mirror, and the mirror was adjusted to its first experimental setting. *S* was told to open his eyes and *E* asked: "Is this a perfectly true image of yourself, or not?" If *S* responded in the negative, he was asked to describe what was wrong with the image. A verbatim account of *S*'s report was taken by *E*, *S* was told to close his eyes again, and he was shown the next setting. Each representation was preceded by the question: "How is this?" For each image, a brief description was secured from *S*. The image that *S* selected as "true" on each series was recorded with respect both to how far it was from neutral, and also with respect to the direction of the error, whether too long or too short. Hypothetically, it was possible for *S* to achieve a perfect score on each series.

Ss were assigned to several groups, and shown all the possible sequences of ascending and descending series of images in counter-balanced order, including series starting from neutral and becoming progressively longer or shorter. All *Ss* were retested after an interval of one week.

b. The estimation of another person's face. Immediately before testing, *S* was allowed to look at another person (*E*'s wife) for 30". *S* was instructed to memorize the appearance of the other person's face (front view), and told that his memory would be tested. *S* was then seated at such an angle to the mirror that he could see a front view of the other person's face and shoulders in the mirror, but would be unable to see his own reflection. The necessary angle of rotation for *S* was 20' to the right, and for the other person, 20' to the left, in relation to the mirror. Exactly the same procedure was used in the Other Face Test as in the Own Face Test, with each group of *Ss* being shown the same sequence of series as formerly. There was no retest.

c. *The estimation of objects.* As in the Other Face Test, *S* was permitted this time to look at an inanimate object for 30" immediately before testing. He was told to memorize the appearance of the object, and instructed that his memory would be tested. He was seated before the mirror in the same manner as in the Other Face Test.

In order to ascertain the influence of such formal qualities of the stimuli as size, complexity, and vertical-horizontal ratio (in all their possible combinations) on estimations made in the mirror situation, and also to compare a number of inanimate objects with the Own Face and Other Face stimuli, eight objects were selected. Descriptions of the objects appear in Table 1.

TABLE 1

Name	Description	Color	Dimensions
1. Telephone (front view)	Complex, horizontal, small	Black	6 x 8½ x 8½"
2. Lamp shade (round)	Simple, horizontal, large	Yellow	5 x 9 x 16"
3. Candelabra (front view)	Complex, vertical, small	Red	3 x 4 x 8"
4. Waste basket (round)	Simple, vertical, large	Yellow	10½ x 13½ x 14½"
5. Shoe box (broad view)	Simple, horizontal, small	Tan	4 x 4 x 11"
6. Truck (broad view)	Complex, horizontal, large	Red & Gray	6 x 6 x 19"
7. Book (broad view)	Simple, vertical, small	Green	1¼ x 6¼ x 9¼"
8. Boy doll	Complex, vertical, large	Blue, Red & White	5 x 10¼ x 22"

Each of the objects was placed on a stand draped in black, and situated at an angle of 20' in relation to the mirror. Because of the dim lighting conditions, the outlines of the draped stand were not visible against the black background of the experimental enclosure. The stand was mounted on a vertical shaft, thus permitting the raising and lowering of each object in order to bring the center of the object in line with the height of the mirror's center, and with *S*'s eyes.

S then viewed the object's reflection in the mirror, and made his estimations. As in the Other Face Test, a partition prevented *S* from looking directly at the object during the test proper. After *S* had made his judgments for one object, he was taken into a room with normal illumination, and shown the next object against an ordinary background (a tan wall)

for 30", and this procedure was repeated until *S* had examined and judged every object. The objects were shown always in the same sequence, telephone first, lamp shade second, etc., as listed in Table 1. As in the Other Face Test, the various possible sequences of series were administered, including series starting from neutral.

4. *The Rorschach Test*

Each *S* was administered a standard, individual Rorschach. Beck's scoring system was employed. Piotrowski's criteria for the determination of *M* responses were used. None of the *Ss* had any previous familiarity with this test.

C. RESULTS

The first hypothesis states that recognition of the true proportions of one's own face is subject to considerable error. The data in Table 2 confirm this hypothesis. These values represent—using the photographic technique of

TABLE 2
AVERAGE ERROR OF ESTIMATION OF THE TRUE PROPORTIONS OF OWN FACE*

	Men		Women		Men and women	
	Mean	SD	Mean	SD	Mean	SD
Ser. a	-2.71	0.89	-3.43	1.28	-3.07	1.15
Ser. b	+3.05	1.62	+2.26	1.71	+2.68	1.70
Ser. a+b	+0.17	0.80	-0.56	1.03	-0.20	0.99

*Negative scores reflect overestimation of the lengths of images in relation to width. Positive scores indicate underestimation of length in relation to width. The higher the score, the greater the deviation from neutral, i.e., the normal ratio of height to width.

calibrating the mirror images—the choice of images as much as 7.0 per cent longer or shorter than normal, on the average, with width held constant. It should be emphasized, of course, that all estimations were made under conditions of low illumination. The order in which the Own Face Test was administered, relative to the Other Face and Objects Tests, was found—by means of analysis of variance technique—to be unrelated to the size or direction of obtained errors.

Reference to Table 2 suggests that it is impossible to consider the general inaccuracy of the *Ss* without recognizing that their errors were influenced by the series in which they occurred, and were therefore constant errors. It was found that, compared with the percentage of perfectly accurate estimations made with the initially distorted series, the effect of being shown an initially accurate image was a striking increase in accuracy of estimation.

The finding that, in the absence of an initially distorted standard, *Ss* could recognize themselves accurately—as well as another person's face, or inanimate objects—as much as 50 per cent of the time, suggests that the first hypothesis is not supported entirely by the data.

The second hypothesis states that the error in recognizing one's own face is a fairly stable one. In view of the finding that accuracy of self recognition is influenced by the manner in which the stimulus is presented, the second hypothesis would appear to be refuted. It should be noted, however, that the group as a whole showed significant (.01 level), positive correlations between corresponding series of Test and Retest.

The third hypothesis states that errors in estimating the proportions of one's own face tend to be greater than errors made in judging the proportions of (a) another's face, or (b) inanimate objects. In view of the fact that the other person was a young woman, it is not possible to provide a general answer to the first part of this hypothesis.

A comparison of the means for the Own-Face Test and the Other-Face Test is found in Table 3, and shows that only the men (on Ser. *b*) were

TABLE 3
SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, OWN FACE, AND OTHER FACE

	Own face		Other face		Diff.	<i>t</i>	<i>P</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
<i>Ser. a</i>							
Men	-2.71	0.89	-2.77	1.08	0.06	0.21	.80
Women	-3.43	1.28	-3.45	1.16	0.02	0.08	.90
M & W	-3.07	1.15	-3.06	1.19	0.01	0.06	—
<i>Ser. b</i>							
Men	+3.05	1.62	+2.17	1.42	0.88	2.51	.02
Women	+2.26	1.71	+2.77	1.42	0.51	1.70	.10
M & W	+2.68	1.70	+2.42	1.44	0.26	1.04	.30
<i>Ser. a & b</i>							
Men	+0.17	0.80	-0.17	0.82	0.34	1.62	.10
Women	-0.56	1.03	-0.39	0.75	0.17	0.85	.40
M & W	-0.20	0.99	-0.28	0.80	0.08	0.53	.60

significantly less accurate in the self-recognition test than in estimating the proportions of the other person's face. No significant differences were found for women.

Inspection of Table 4 shows that in the self-recognition test, men made significantly larger errors than women on Ser. *b*, whereas women made significantly larger errors than men on Ser. *a*. Evidently, the performance of the male *Ss* in estimating the proportions of the other person's face did

not parallel their performance in the self-recognition test. Such a parallel did exist for the female Ss, possibly because in the Other-Face Test they were judging the face of a person of the same sex.

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, OWN FACE AND OBJECTS

	Own face		Objects		Diff.	<i>t</i>	<i>P</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
<i>Ser. a</i>							
Men	-2.71	0.89	-2.33	0.96	0.38	1.31	.20
Women	-3.43	1.28	-2.89	0.78	0.54	1.80	.10
M & W	-3.07	1.15	-2.61	0.92	0.44	2.10	.05
<i>Ser. b</i>							
Men	+3.05	1.62	+1.82	1.15	1.23	3.42	.001
Women	+2.26	1.71	+2.35	1.15	0.09	0.21	.80
M & W	+2.68	1.70	+2.09	1.18	0.59	2.03	.05
<i>Ser. a & b</i>							
Men	+0.17	0.80	-0.29	0.46	0.46	2.56	.02
Women	-0.56	1.03	-0.28	0.59	0.28	1.12	.30
M & W	-0.20	0.99	-0.27	0.53	0.07	0.44	.70

The second part of Hypothesis III states that errors made in the self-recognition test tend to be greater than errors made in judging the proportions of inanimate objects. Table 5 contains the relevant data. On each series the group as a whole estimated the proportions of objects with significantly greater accuracy than the proportions of their own faces.

To determine whether the differences between the means for the Objects Test and the Own-Face Test may be attributed to the possibility that the

TABLE 5
SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, MEN AND WOMEN

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, MEN AND WOMEN							
	Men		Women		<i>t</i>		<i>P</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>	(Students)		
<i>Ser. a</i>							
Own face	-2.71	0.89	-3.43	1.28	0.72	2.77	.01
Other face	-2.77	1.08	-3.45	1.16	0.68	2.65	.02
Objects	-2.33	0.96	-2.89	0.78	0.56	2.80	.01
<i>Ser. b</i>							
Own face	+3.05	1.62	+2.26	1.71	0.79	2.02	.05
Other face	+2.17	1.42	+2.77	1.42	0.60	1.82	.10
Objects	+1.82	1.15	+2.35	1.15	0.53	2.04	.05
<i>Ser. a & b</i>							
Own face	+0.17	0.80	-0.56	1.03	0.73	3.32	.001
Other face	-0.17	0.82	-0.39	0.75	0.22	1.29	.20
Objects	-0.29	0.46	-0.28	0.59	0.01	0.07	.90

latter was a self-recognition test, and not just a test of accuracy in estimating the proportions of a human face, as such, it is necessary to consider the data in Table 6. Here, only the women are significantly more accurate (on Ser. *a*) in recognizing the correct proportions of objects, as compared with the other person's face. As has been noted above, to the extent that the judgments of female Ss in the self-recognition test closely paralleled their judgments in the Other-Face Test, it may be inferred that the Objects Test was, in part, different from the other two experimental situations: only the latter involved human faces. For men, the Other-Face Test and the Objects Test were comparable in difficulty, and the self-recognition test was more difficult than either of the others.

TABLE 6
SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, OTHER FACE, AND OBJECTS

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS, OTHER FACE							
	Other face		Objects		Diff.	<i>t</i>	<i>P</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
<i>Ser. a</i>							
Men	-2.77	1.08	-2.33	0.96	0.44	1.83	.10
Women	-3.45	1.16	-2.89	0.78	0.56	2.43	.02
M & W	-3.06	1.19	-2.61	0.92	.045	2.50	.02
<i>Ser. b</i>							
Men	+2.17	1.42	+1.82	1.15	0.35	1.30	.20
Women	+2.77	1.42	+2.35	1.15	0.42	1.27	.20
M & W	+2.42	1.44	+2.09	1.18	0.33	1.57	.10
<i>Ser. a & b</i>							
Men	-0.17	0.82	-0.29	0.46	0.12	0.75	.50
Women	-0.39	0.75	-0.28	0.59	0.11	0.61	.50
M & W	-0.28	0.80	-0.27	0.53	0.01	0.08	.90

It should be emphasized that the various objects employed in testing the above hypothesis do not necessarily constitute a group with common properties. Analysis of variance for the eight objects showed that the means of the objects differed more than could be expected on a chance basis on Ser. *a*. No consistent pattern of differences was found. To some extent, the complex objects were more difficult than the simple ones. Since the Own-Face and Other-Face Tests involved stimuli that were complex, it may be supposed that the greater difficulty that Ss had in estimating their own facial proportions, or those of another person, in comparison with objects considered as a group, in some measure was due to the fact that half of the objects were simple, hence "easier" to judge.

The fourth hypothesis, namely, that individual differences in magnitude of error in the self-estimation test are correlated significantly with differ-

ences in Rorschach $H\%$, $Hd\%$, and $M\%$, was not upheld by a Chi-square analysis.

D. SUMMARY

The concept of body image has been used to designate one's perception and evaluation of his own body. The present study has attempted a limited definition of body image in terms of relative accuracy in recognizing one's own face and shoulders under ambiguous conditions. A variable mirror, capable of providing a series of graduated distortions, was used to provide data concerning Ss' judgments as to the true proportions of their own faces and other stimuli. Specifically, the ability to recognize one's own true facial proportions from among a graded series of distorted images was compared with ability to recognize the true proportions of another person's face, and eight inanimate objects. It was hypothesized that greater errors would occur in self estimation than in the other recognition tests, on the assumption that the ability to recognize one's own face would be affected by the presence of self attitudes and values that do not attach to other persons or objects. Also, it was hypothesized that accuracy of self estimation would be related to Rorschach factors $H\%$, $Hd\%$, and $M\%$, insofar as these signs might be thought of as betokening a general interest in people, and, possibly, in the self perceived as a social stimulus. Data provided by 42 Ss indicated that only the men were significantly less accurate in recognizing their own faces, as compared with the face of another person (E 's wife). Female Ss failed to show such a trend. Possibly, if the Other-Face Test had included a male stimulus-face, in addition to a female, a definite answer might have been reached concerning the prediction that self-estimation would prove more difficult than estimating the appearance of another person. The prediction that self-estimation would prove more difficult than estimating the proportions of objects was borne out for the group as a whole, but again was more marked in the case of the male Ss . In the self-recognition test, the latter characteristically selected as true representations of the self images that were disproportionately wide and "husky-looking." The female Ss tended to err in the direction of selecting self images that were too long and "slender-looking." These findings are valid, of course, only within the limitations of the procedures employed, and general theoretical inferences may be drawn only with the greatest caution. No relationships were obtained between accuracy in the various mirror situations and frequency of Rorschach determinants. Presumably, judging from our results, a person's knowledge of his facial appearance cannot be equated with whatever it is that our Rorschach factors represent. In sum, the results with the mirror

technique, though inconclusive, suggest that the problem of self perception can be approached in a concrete and fairly naturalistic way.

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THE INTENSITY DIMENSION OF CLASS CONSCIOUSNESS AND SOME SOCIAL AND PSYCHOLOGICAL CORRELATES*

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A. INTRODUCTION

One of the many hitherto uninvestigated aspects of class consciousness is the individual's strength of identification or strength of his feeling of belonging to his social class. Class consciousness as the writer conceives it is a complex of many affective and cognitive dispositions (attitudes and beliefs) the nexus of which is the individual's feeling and awareness of class membership. This crucially important core is itself something of a complex, however, for it is a substructural disposition in turn organized of both affective dispositions (attitudes) and cognitions of many sorts. All of its dimensions are not only unknown as yet, but have not as yet even been postulated in any highly explicit way, partly because our theoretical understanding of the structure and function of attitudes and beliefs in general has so long remained in an undeveloped state. Yet one dimension of attitudes apart from their directionality which has many times been recognized and sometimes separately measured, albeit quite crudely, is the strength of affect, or intensity characteristic, and it has seemed entirely probable that such a dimension not only exists for class affiliative attitudes also, but with them might be of central importance. One purpose of the present paper is to communicate certain findings on this point. Another is to further appreciation of the psychological significance of class consciousness itself.

While it has been demonstrated many times over (1, 2, 3, 4, 5, 6, 7, 8, 9) that the vast majority of Americans are subjectively identified with one or another of our several class groupings, it appears to be the feeling of a not inconsiderable number of psychologists and social scientists that such class consciousness is rather lightly held and perhaps plays no very significant rôle in the personality dynamics of individuals in our relatively democratic

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society. Although the writer has maintained the contrary and has on numerous occasions pointed out that significant antipathies in attitudes and beliefs are more than casually correlated with differences in class membership feeling, and has also indicated substantial differences in values and political behavior on the part of classes, and has thus to a degree discredited such a view, the "depth" of involvement of such variables with class affiliation in personality structure has remained incompletely known. It has been reasoned that if it could be determined in some fairly direct way that individuals' strength of membership feeling in their classes is correlated with attitudes, and also with differences in attitudes between classes above and beyond the correlation of class membership differences alone with them, this would constitute strong additional evidence for the writer's view indicated above as well as for the interest-group theory of class structure promulgated in previous of his works (1, 2, 3, 4, 5, 6, 7, 8, 9).

B. PROCEDURES AND RESULTS

1. *Felt Strength of Belonging to Social Classes*

The data to be reported were obtained in a survey carried out in March, 1950, through the facilities of the National Opinion Research Center, whereby person to person interviews were conducted with a sample of 1,270 persons representing a cross section of the American adult public and drawn from localities and communities widely distributed over the country. Embodied in the interview schedule were questions designed to ascertain the individual's class identification, his felt strength of affiliation with that class, his beliefs with regard to certain matters which were presumed to be of different consequence for members of different classes, his judgment with respect to the class membership of other persons in terms of stated beliefs, his political party alignment, and various facts about himself, such as occupation, age, educational level, etc.

To ascertain subjective class affiliation individuals were asked the same question which has been employed in several previous surveys; viz., "If you were asked to use one of these four names for your *social class*, which would you say you belonged to—the middle class, lower class, working class, or upper class? The obtained responses were as follows:

Upper Class	3%
Middle Class	35%
Working Class	59%
Lower Class	1%
Don't Know	2%

The responses on this particular question are of only secondary interest here, but it is worth noting in passing that the percentage of individuals identifying themselves with the working class shows a considerable increase, with a corresponding drop in middle class affiliation, since this question was first employed in national surveys in 1945. It might well be that events since that time have in some way effected the change, but, it may be due simply to a fairer representation of the poorer socio-economic strata in this sample.²

This preliminary was immediately followed by the question of more immediate interest, namely: "Is your feeling of belonging to the _____ class (whichever the respondent had chosen) very strong, fairly strong, or not at all strong?" The responses for each of the several classes as well as for the total class-affiliated cross section of the public are indicated in Table 1. By far the great majority of people, it is clear, have a strong feel-

TABLE 1
STRENGTH OF FEELING OF BELONGING OF MEMBERS OF VARIOUS SOCIAL CLASSES

Class affiliation	N	Strength of feeling of belonging			
		Very strong	Fairly strong	Not at all strong	Don't know
Upper Class	35	40%	40%	14%	6%
Middle Class	442	27*	38	30*	5
Working Class	751	39*	36	16*	9
Lower Class	11	—	46	36	18
All classes	1,237†	34	37	21	8

*Differences between adjacent starred figures in the same column are statistically significant at the 95 per cent confidence level or better.

†This number omits persons who stated no class membership and those for whom data was missing either as to class membership or strength of belongingness feeling.

ing of belonging to their class, with over one-third indicating such a feeling to be *very strong*. Strength of belongingness, however, is not equally distributed in all classes, and certain contrasts between classes are quite outstanding. For instance, whereas 40 per cent of upper class people experience *very strong* belongingness feelings, not a single one of the few lower class respondents in the sample reports such a strength of felt membership. The smallness of these two groups of class affiliates precludes any high reliance on the obtained figures on statistical grounds, of course, but such a great

²These figures agree quite closely with those obtained on the same question in August, 1949, by NORC (11). These were: upper 3 per cent, middle 32 per cent, working 61 per cent, lower class 2 per cent, and "don't know" 2 per cent. This leaves the question as to cause of the change, improved sampling vs. social forces, unanswered, but does indicate (or suggest) that the present sample is like other NORC samples in characteristics.

difference cannot be entirely ignored. With the far more statistically adequate samples of working class and middle class people another quite substantial—and in this case statistically significant—difference exists. There is distinctly higher incidence of *very strong* membership feeling in the working class, and in this group it is the modal response, with only about one-sixth of the membership indicating a feeling of belonging which is *not at all strong*. Membership feeling in the middle class, in contrast, is somewhat more commonly *not at all strong* than it is *very strong*, and a *fairly strong* feeling of belonging is the modal response.

For the data in Table 1 the following overall generalization may be tentatively drawn: in numerically small but high status, and in intermediate in status but numerically large social classes (the upper class and working class in America respectively) belongingness feeling tends to be *very strong* or *fairly strong* in the main, while in lower status but numerically small, and in intermediate in status but numerically small social classes (the lower class and middle class in America respectively) belongingness feeling tends to be mainly *fairly strong* or *not at all strong*. The complex interrelationship of social rank and number with strength of membership feeling, although apparent here, may not, of course, from these data alone, be assumed to be causal. That may be the case, for rank and size are meaningful variables cognizance of which may well be operative as determinants of belongingness feeling, but it is possible also that the relationship is the creature of still more basic determinants and is itself more or less artifactual.

2. Occupation as a Correlate of Felt Strength of Belonging

Previous research has consistently shown class consciousness in the sense of class identification as well as class ascription to be multidetermined rather than the effect of any one variable, but it has been found rather consistently also that such awareness is to a higher degree the correlate of occupational status than of any other equally unitary factor (1, 2, 3, 12, 13). The interpretation has been that one's occupational position operates in a deterministic sense in aligning a person with some class grouping, and to the extent that persons perceive similarities in their occupational statuses and rôles, and perceive similarities in their life circumstances which devolve on occupational position, there is a clear expectation that common interests and consciousness of kind should develop. It has been documented in previous studies that the more typically the nature of the individual's occupation approaches the status of employee, wage earner, and manual worker the more likely is he to be found identified subjectively with the working class, while

the more typically his occupational status approximates that of proprietor or manager or professional man the more common is his affiliation with the middle (or upper) class.

In formulating this present research, financial limitations precluded any exhaustive investigation of possible determinative correlates of the intensity dimension, but in consideration of the foregoing, occupation was suggested as most likely to be an important one, and so it turns out to be, as scrutiny of the data in Table 2 will show. Table 2 indicates the class affiliation of persons of our numerous occupational strata, both urban and rural, with a subdivision of affiliation with the middle and working classes according to felt strength of belonging. Subdivision of upper and lower class affiliates has been omitted as a matter of convenience, for the extremely small numbers of respondents involved warrants no detailed treatment. The data for the non-farm portion of the population present a quite easily perceived pattern, especially with regard to the *very strong* response for those identifying themselves with the two major classes, who have some representation from every occupational category. The higher the occupational position the higher the incidence of *very strong* feeling of belonging to the middle class, and the lower the incidence of *very strong* feeling of belonging in the working class. Conversely the lower the occupational status the more numerous is a *very strong* membership feeling in the working class and the less numerous is a *very strong* feeling of belonging in the middle class. To contrast extremes, whereas 40 per cent of large business owners and managers are strongly identified with the middle class and none strongly identified with the working class, only three per cent of unskilled manual workers have a *very strong* feeling of membership in the middle class, while 38 per cent of them manifest a *very strong* feeling of belonging to the working class. Occupational position is, then, apparently a factor which influences not only the character of the individual's group affiliation but simultaneously the strength of that affiliation.

3. *Felt Strength of Belonging and Political Party Alignment*

"In politics today, do you consider yourself a Democrat, or a Republican, or do you favor some other party?"

This question, asked in the attempt to determine what correlation might exist between strength of class membership feeling and political alignment, reveals little if any such correlation among working class respondents, who turn out to be preponderantly Democratic irrespective of strength of membership feeling, but does show a modest degree of correlation among middle

TABLE 2
CLASS IDENTIFICATION BY OCCUPATIONAL STRATIFICATION, WITH FELT STRENGTH OF BELONGINGNESS SHOWN FOR THOSE IDENTIFIED
WITH THE WORKING AND MIDDLE CLASSES

		Class identification and felt strength of belongingness										
			Middle Class				Working Class					
Occupational stratum	N	Upper Class	Very strong	Fairly strong	Not at all strong	Strength not known	Very strong	Fairly strong	Not at all strong	Strength not known	Lower Class	Class not known
<i>Urban strata</i>												
Large Business	20	25%	40%	30%	—%	—%	—%	5%	—%	—%	—%	—%
Professional	63	14	22	29	17	3	8	3	—	2	—	2
Small Business	153	2	13	16	17	3	13	18	7	6	1	4
White Collar	221	3	14	19	17	3	14	15	11	2	—	2
Skilled Manual	240	1	6	10	12	—	28	25	11	4	1	2
Semi-Skilled	216	2	5	8	5	2	29	31	12	3	2	1
Unskilled Manual	123	1	3	2	3	3	38	24	12	11	2	1
<i>Rural strata</i>												
Farm Owners & Mgrs.	141	1	7	15	9	1	29	21	9	6	—	2
Farm Tenants	47	—	8	9	4	—	26	26	13	8	6	—
Farm Laborers	17	—	—	—	—	—	18	35	6	41	—	—

class people. The responses of the latter group, contrasted in terms of intensity of belongingness feeling are summarized in Table 3. The very large percentage of persons of independent or undecided political persuasion suggests a greater than usual lack of sharp division in terms of parties at the

TABLE 3
POLITICAL PARTY ALIGNMENT (MARCH, 1950) OF THE MIDDLE CLASS BY FELT
STRENGTH OF BELONGING

Intensity of feeling of belonging	N	Political party alignment			Don't know
		Democrat	Republican	Other & independent	
Very Strong	120*	49%	23%	23%	5%
Fairly Strong	167	45	30	18	7
Not at All Strong	133*	39	34	23	4

*For statistical significance at the 95 per cent level of confidence a difference of approximately 12 per cent is required between these two groups.

time the question was asked (March, 1950), and so it's entirely possible that larger differences would have been found had the enquiry been undertaken on another occasion. As of the time the question was asked, however, strength of membership feeling is definitely accompanied by favoring of the Democratic party, and lack of strength of membership feeling is associated with more common Republican alignment. This relationship is perhaps understandable on the assumption that those in the middle class who do not feel strongly identified with it represent substantial numbers of persons of a more individualistic and more conservative personality make-up than others of their class. Such persons would, at least, be of the sort more likely to find the Republican policies and ideology more compatible than would others.

4. *Attitude and Belief as Correlates of Felt Strength of Belonging*

As indicated previously, one of the hypotheses tested in this investigation was the relationship posited between the intensity of feeling of class membership and the individual's beliefs and attitudes. One of the questions seeking to elicit manifestations of these variables was, "Do you think it would be a good thing if we had a national political party which clearly represented the interests of the working class?"

As expected, and as is evident in the data of Table 4, this proposal is favored by a majority of working class affiliates, but opposed by an even larger majority of people identified with the middle class. The latter group's opposition is not to any considerable degree differentiated in terms of strength of belongingness, and hence data regarding it offer little support

for the hypothesis, but there is, within the working class group, a quite clear pattern of differences which plainly support it (Table 4). With respect to the percentages favoring a working class party it is to be noted that the difference between those whose feeling of belonging to the working class

TABLE 4
ATTITUDES TOWARD A PROPOSED POLITICAL PARTY FOR THE WORKING CLASS OF MIDDLE CLASS MEMBERS, AND OF WORKING CLASS MEMBERS ACCORDING TO FELT STRENGTH OF BELONGING

Class identification and strength of belonging	N	Favor	Oppose	Undecided
Middle Class	442	32%*	56%*	12%
Working Class	752†	53*	30*	17
Very strong	293	59**	25**†	16
Fairly strong	270	55	35†	10
Not at all strong	123	39**	39**	22

*Differences between marked thus figures in the same column are statistically significant at the 95 per cent confidence level or better.

**Differences between marked thus figures in the same column are statistically significant at the 95 per cent confidence level or better.

†Differences between marked thus figures are statistically significant at the 95 per cent confidence level or better.

‡This N includes those of the working class not stating strength of felt belongingness.

is *very strong* and those whose feeling of belonging is *not at all strong* is practically as great as the difference between the middle class and the working class as a whole. Those in the working class whose feeling of belonging is *not at all strong* rather neatly display their lack of concern, it appears, in opposing a party which would represent the interests of the working class precisely as often as they favor it. Those working class members whose feelings of membership are *fairly strong*, definitely favor a working class party, however, and those whose feeling of belonging is *very strong* favor it still more. Certainly this is as it should be, for it is precisely that person who is strongly identified with it subjectively who should espouse proposals which would advance the welfare of his group.

The asking of a second question designed to elicit class-involved responses was effected by presenting to each person interviewed a card listing the alternatives shown below, and inquiring, "which one of those four statements comes closest to your opinion on government ownership and control of big industries?"

A. The government itself should own and operate big industries.

B. The government shouldn't own and operate big industries, but it should have more control over them than it has now.

C. The government has about the right amount of control over big industries now.

D. There is too much government control over big industries as it is.

Although both differences between classes and differences within classes in relation to intensity of class membership feeling exist for this issue of government's control of big industries, the smallness of numbers in subsamples other than those of the working class makes elaborate cross comparisons in terms of four response categories of dubious utility, and it suffices for the purpose here to point up merely the data for this largest class (Table 5). Within the working class intensity of feeling of belonging tends to be

TABLE 5
ATTITUDES TOWARD GOVERNMENT OWNERSHIP AND CONTROL OF BIG INDUSTRIES BY
WORKING CLASS MEMBERS BY STRENGTH OF MEMBERSHIP FEELING

Strength of membership feeling	N	Ownership or more control than now	Response satisfied as is at present	Too much control now	Undecided
Very strong	293	45%*	35%	12%	8%
Fairly strong	271	42	32	17	9
Not at all strong	123	32*	42	15	11

*The difference between these percentages is statistically significant at the 95 per cent confidence level or better.

accompanied by a more radical (or leftist) orientation and point of view. The dominant response of the minority of this class whose belongingness feeling is *not at all strong* is indicative of satisfaction with the *status quo*. In contrast, the largest portion of the working class, those with a *very strong* feeling of belonging, predominantly favor either outright ownership or more control of big industries than now obtains.

5. Cognitive Bias in Relation to the Intensity Dimension

Elsewhere (10) the writer has reported data on another aspect of class psychology which was investigated concurrently with those under consideration here. This was people's ability, when confronted with certain limited information on the characteristics of others, to place them in an appropriate social class. It has been found that people in general are able to do this with quite fair accuracy, not only when the stated characteristic of the fictional individual is only his occupation, but also when the attributed characteristic is merely an opinion of such a hypothetical person. Together with this, however, there was also uncovered a systematic distortion or bias in the perceptual and cognitive responses of large sectors of the American Public,

which, since its effect was to maximize the social importance of the class to which the respondent himself belonged, was interpreted as a result of ego-enhancing dynamics.

The inclusion of items in the interview schedule seeking to elicit judgmental responses at the same time that the intensity dimension was under scrutiny provided an interlocking design that makes it possible to now bring these two phenomena into relation with regard to the hypothesis that the individual's felt intensity of belonging to a class is attended by systematic biases in perceptual and cognitive judgment. For this purpose, analysis has been made of responses to the following question: "Suppose you heard someone say he believed it was the government's responsibility to guarantee every person a steady job and a decent standard of living. To what class would you think he *most probably* belonged—middle class, lower class, working class, or upper class?"

This item embodies a question³ on which previous investigation (3) has indicated a majority of urban working class people and an even larger majority of lower class members take the position that the government's responsibility should be such, while only minor percentages of middle and upper class persons concur in such a view. Since this is a belief which typifies both working class and lower class persons to a substantial degree a respondent could say either "lower class" or "working class" and be essentially correct in either case. The ambiguity, or lack of clear objective structuring, of what is to be judged, moreover, is a state of affairs especially calculated to elicit the biasing or distorting effects of value and need dynamics if such be present in the personality structure of the respondent. As indicated previously, it was supposed, as a working hypothesis, that felt strength of belonging, being a manifestation of a need for affiliation and other dynamic tendencies, might in some way be attended by perceptual and cognitive bias. The complexity of the variables and indirectness of the relationships in question, however, precluded any precise prediction with regard to the *direction* such a bias would take. Especially was this so, in view of the fact that four different classes, each of whose members have different frames of reference, are involved.

In Table 6 are presented the responses to the question described above with the relation to strength of belongingness indicated for both of the two

³The question of the earlier survey had been phrased as follows: "Which one of these statements do you most agree with? (1) The most important job for the government is to make it certain that there are good opportunities for each person to get ahead on his own. (2) The most important job for the government is to guarantee every person a decent and steady job and standard of living."

largest social classes. Differences in judgment are apparent within each of these major groupings, and there is a system and order in the pattern of differences that strongly suggests some dynamic influence of intensity of membership feeling or of some complex of dynamic variables of which it is either a function or component. In both the middle and working classes greater felt strength of belongingness is seen to be accompanied by increas-

TABLE 6
CLASS MEMBERSHIP ASCRIBED TO PERSONS REPUTED TO BELIEVE THAT GOVERNMENT
SHOULD GUARANTEE EMPLOYMENT AND DECENT STANDARD
OF LIVING TO ALL

Class identification and felt strength of belonging	N	Class ascribed					
		Upper	Middle	Working	Lower	Working or lower	Other and undecided
Middle Class							
Very strong	121	2%	8%	37%*	44%	2%	7%
Fairly strong	167	2	11	31	41	8	7
Not at all strong	133	1	11	22*	54	4	8
Working Class							
Very strong	291	6	8	42**	28**	3	13
Fairly strong	270	4	10	33	39	5	9
Not at all strong	122	2	6	31**	43**	6	12

*.**Differences between marked thus figures in the same column are statistically significant at the 95 per cent confidence level or better. Results of significance tests for differences between subgroups of the *same class only* are thus noted.

ing incidence of ascription of working class membership to the person alleged to believe that the government should insure his employment and standard of living. Persons in both classes whose feeling of belonging is *not at all strong* distinctly more commonly attributed lower class membership to such a person than do those whose feeling of belonging is *fairly strong* or *very strong*.

The interpretation of the relationship between felt strength of belonging and judgment manifested here is not a simple matter even for the working class, but is perhaps best understood as a determination of judgment by value and need factors. The person whose feeling of belonging to the working class is *very strong* was indicated by his response to a preceding question as likely to be radical or collectivist in point of view, and hence is *himself* likely to believe the government should guarantee an individual's security and livelihood. If this is so, he is under some tension, we might expect, to find cognitive and emotional *support* for such a view. This he can achieve by strongly identifying himself with a group which he perceives as sharing

it. Moreover, the point of view is made more worthwhile, more ego-enhancing, subjectively, if it is perceived as shared by a large body of people—and the working class represents such a body *par excellence*. Those persons in the working class whose feelings of belonging to it are *not at all strong*, in contrast, not only probably do not in any great number themselves believe the government should underwrite one's job and standard of living, but, not believing it, also need cognitive and emotional support for their view. Hence they tend to perceive others of their class as also not believing it, attributing it to another (the lower) class in the main. Such a response in effect seems to mean that most of these persons do not identify themselves with persons they perceive as holding this belief. Yet they are identified on other grounds with a class of persons who in large numbers do hold such a view. Their failure in large numbers to perceive this could fairly reasonably be seen in terms of recent perception and ego theory as a case of perceptual and cognitive *defense*, since it probably would serve to protect and preserve the group identification they have made. An alternate interpretation, in view of the weakness of their class identification, is that such a lack of strong involvement conduces simply to lack of awareness of the ideological norms of the group on the part of these peripheral and nominal members. In these same terms, persons strongly identified with their class, on the other hand, may well have such a heightened attentiveness to and evaluation of the ideological tendencies of their own group that they perceive all those sharing such tendencies as belonging to their group, perhaps thus including persons whom those less strongly identified with the working class would tend to think of as lower class in membership.

Since middle class persons perceive the world from a somewhat different vantage point and thus have a somewhat different frame of reference for making judgments the first interpretation offered above is not of equal service in their case. An explanation along the lines of the second one offered above seems more plausible. The finding that the middle class affiliates whose feelings of belonging are *very strong* attribute working class membership to the hypothetical believer more commonly than those whose feeling of belonging is *not at all strong* is very possibly due to a heightened attentiveness to and sharpened awareness of the ideological norms of an immediately adjacent and perhaps "threatening" social class. It is perhaps a case where perceptual *vigilance* with respect to a particular out-group is sharpened by stronger emotional involvement in one's own group.

Although there was a further question utilized in the survey which elicited judgments of class membership in terms of manifest beliefs, it needs to be

mentioned only briefly, since it was not calculated to evoke the same dynamic tendencies referred to above, and typified a person of an arch-reactionary sort who could hardly be found in any substantial numbers except in the upper class. It was: "Suppose, in another case, you heard someone say that labor unions are ruining this country, and all strikes ought to be completely forbidden by law. To what class would you think he *most probably* belonged—middle class, lower class, working class, or upper class?"

By far the most common ascription by persons of all classes and of all degrees of membership feeling is upper class, with middle class ascription next most common, and there are no appreciable or statistically significant differences within any class when responses are arrayed in terms of felt strength of belonging. Perceptual and cognitive distortion or bias is not found here, it may reasonably be surmised, simply because there is insufficient ambiguity concerning the character of the object of judgment. There is far less of it, certainly, than was present in the first case above, and this lack of ambiguity, as others have found, tends to prevent bias and distortion in perception and judgment by value and need dynamics.

C. SUMMARY

In order to examine the hypothesis that an intensity dimension of class consciousness exists and plays some significant part in this complex of affective and cognitive dispositions, a survey involving a nationally representative cross section of the adult American public was designed and carried out in March, 1950. Person-to-person interviews were conducted with 1,270 persons wherein they were systematically questioned with regard to class identification, felt strength of belongingness, political alignment, government ownership and control of big industries, the desirability of a working class political party, and the class membership of certain hypothetical persons who were described to them merely in terms of some single belief statement.

The resulting data were analyzed with regard to the correlations between felt strength of belonging to a social class and occupational position as well as between felt strength of belonging and each of the aforementioned variables. Significant and positive relations were found to exist in each case, and in general the data may be viewed as a demonstration that an individual's strength of membership feeling in a social class, either in itself or as an index to some more fundamental determinant, is widely involved in his responses to his social world.

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THE INFLUENCE OF ATTITUDES ON SYLLOGISTIC REASONING*

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A. PROBLEM

In recent years there has been a sharp increase of interest in the influence of personality variables on cognitive processes. A considerable number of studies have attempted to demonstrate experimentally the influence of needs, values, and attitudes on perception, thinking, and memory. (For example, cf. reviews in 2, 6, 7.) One of the more striking investigations of this problem is a study by Morgan and Morton (5). If these authors are right: "A person is likely to accept a conclusion which expresses his convictions with little regard for the correctness or incorrectness of the inferences involved. Our evidence will indicate that the only circumstance under which we can be relatively sure that the inferences of a person will be logical is when they lead to a conclusion which he has already accepted" (5, p. 39).

The experiments on which such an important conclusion rests deserve careful examination. It is the purpose of the present paper to study further the effect reported by Morgan and Morton.

These authors presented two sets of 15 syllogisms to 98 college students, the terms of one set being vital issues of the day, those of the other being symbols. Each syllogism phrased in terms of current issues was matched in structure by one in symbolic form. In each case a major and a minor premise were presented and the subject was required to select among four alternative conclusions or to indicate that none of the conclusions offered seemed to follow logically. The following is an example of a syllogism phrased in terms of a popular issue (5, p. 49):

Teutonic peoples are warlike and possess high morale in battle; since the people of India are not Teutonic:

1. The people of India are warlike and possess high morale in battle.
2. The people of India may be warlike and possess high morale in battle.

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3. The people of India are not warlike and do not possess high morale in battle.
4. The people of India may not be warlike and may not possess high morale in battle.
5. None of the given conclusions seems to follow logically.

In the case of the syllogisms on vital issues, each conclusion could be designated as one in accordance with logic, with the "atmosphere effect" (cf. 8, chap. 30),² with popular opinion or with none of these ("chance factors"). From the total number of choices in each of these categories, Morgan and Morton conclude that personal convictions contribute about 35 per cent of the deciding influence, atmosphere exerts an influence of about 25 per cent, while logic and chance factors are each responsible for approximately 20 per cent of the choices.

In addition, the results for the symbolic and popular forms of each syllogism were compared to determine the specific effect of personal convictions, with structural factors being held constant. In 14 of the 15 cases significant differences in the choice of conclusions were obtained between the two forms, and the contents of the popular syllogisms were examined to find the attitudinal factors responsible for the differences. For example, in the case of the syllogism presented above, Conclusion 3 is favored in the symbolic form in accordance with the atmosphere effect, while there is a significant shift to Conclusion 4 when the syllogism is stated in terms of current issues. The authors comment (p. 49): "The shift is toward the more cautious statement (No. 4) concerning the warlike capacities of the Indians, a shift which may reflect a wish that they might be warlike enough to be of assistance, such a wish showing itself by a tendency to avoid the more positive statement demanded by the atmosphere effect."

A number of questions arise before we can accept the experiment of Morgan and Morton as a demonstration of the distortion of reasoning by personal convictions. There are two curious omissions in this study which purports to show the influence of attitudes on subjects' reasoning: the authors neglected to determine the attitudes of their subjects and failed to study how they reasoned. In the first connection, results are related to "popular convictions" assumed to exist rather than to the particular attitudes of individual subjects toward the issues contained in the syllogisms—attitudes which would have to be determined empirically. For example, reference is

²Woodworth describes the "atmosphere effect" as a "global impression of affirmation or negation, of universality or particularity" which the premises of a syllogism produce before "the exact pattern of relations inherent in the data" is worked out (8, p. 815).

made, in the absence of specific study of the individuals participating in the experiment, to "the popular conviction that airplanes are more effective than battleships" (p. 51). Likewise other explanations are given in terms of "prevalent opinion" (p. 47), "popular feeling" (p. 50), or a "widely spread conviction at the time this test was given" (p. 57), the existence of all these opinions being taken for granted, not established by the authors.

In connection with the reasoning of the subjects, Morgan and Morton failed to obtain introspective data which might indicate the *processes* involved, but contented themselves with obtaining only the *results* of the thinking processes. It seems risky to conclude that these subjects did not reason logically, even though they checked wrong conclusions, until information is available on *how* they reasoned.

Again, the comparability of the two forms of syllogisms employed by the authors seems open to question. As is evident from the example presented above, the syllogisms stated in terms of popular issues are unwieldy and cumbersome. The same propositions are much more simply and briefly expressed in symbolic form. On the other hand, when a proposition is stated in symbolic form, it is easier for *Ss* untrained in logic to regard the terms of a premise as interchangeable than when the same proposition is couched in verbal terms. It is not uncommon for an untrained *S* to convert the statement "All A is B" into "All B is A." It is not so common to infer from the proposition "All whales are mammals" that "All mammals are whales." It remains, therefore, to be determined whether these differences—rather than the differences with regard to convictions—are responsible for the finding that the symbolic syllogisms yielded different results than their counterparts in popular terms.

Finally, it must be pointed out that the specific demonstration of the influence of convictions in the case of individual syllogisms is far from satisfactory. As mentioned above, a difference in the conclusions selected for the popular and symbolic forms of a syllogism is sometimes attributed to prevalent opinion. In other cases the explanation is in terms of a wish (p. 49), "doubt and pessimism" (p. 53), fear (p. 55), etc. (All these feelings are assumed to exist rather than empirically established.) It would appear that the theory employed by these authors is sufficiently loose to account for any and all findings, even contradictory ones. Such a theory not only sacrifices its predictive value, but can hardly be expected to throw much light on the specific nature of the effects of attitudes and feelings on the reasoning process.

For all the reasons mentioned above, the conclusion of Morgan and Mor-

ton about the very limited ability of human beings to reason logically cannot be regarded as established by their experiment. The present investigation, therefore, takes up again the important issue raised by these authors, but attempts to correct a number of the shortcomings of the previous work.

B. EXPERIMENT I

The first step of the present study consists in a repetition of the above described experiment of Morgan and Morton. If the findings of these authors are duplicated, it will then be possible to relate subjects' choices of conclusions to their attitudes on the issues in question.

Ten of the 15 syllogisms of Morgan and Morton were presented to Ss in both popular and symbolic form. In the case of the popular syllogisms, minor changes in wording were introduced since the issues considered vital in 1942, the time of the previous investigation, were not all of equal interest in 1949-50 when the present experiments were conducted.³ However, the structure of Morgan and Morton's syllogisms remained unchanged. When the syllogisms had been solved, new sheets of paper were distributed containing questions designed to determine Ss' attitudes on the issues presented in the syllogisms.⁴

The experiment was conducted as a group experiment. The Ss were 45 New School students.

Although there are differences in detail,⁵ our results agree well with those of Morgan and Morton. The distribution of conclusions selected for individual syllogisms is roughly the same in the two investigations; and where the popular and symbolic syllogisms give different results, the differences, on the whole, show the same direction in both studies. For example, for 17 out of the 20 syllogisms (10 in symbolic and 10 in popular form) the same conclusion is chosen most frequently by Ss of both investigations. Similarly the same conclusions tend to be avoided by Ss of both studies. As a single representative example,⁶ we present in Table 1 the results obtained in the two investigations for the syllogism given above for illustration.

³In the case of the example presented above, "the people of Russia" was substituted for "the people of India" to give the syllogism current interest.

⁴In the case of the syllogism we have been using as illustrative, the corresponding question on the attitude scale was the following: Do you think the people of Russia (are, may be, are not, may not be) warlike and possess high morale in battle?

⁵For example, our predecessors obtained significant differences between the two kinds of syllogisms more frequently than we did. Again, in the case of the nine invalid popular syllogisms of the test, our Ss correctly indicated that the syllogisms were invalid somewhat more frequently than did those of Morgan and Morton.

⁶The complete data are available on request.

TABLE 1
DISTRIBUTION OF CHOICES OF CONCLUSIONS FOR SYLLOGISM 4: OUR RESULTS AND THOSE OF MORGAN AND MORTON

[illegible]

The general agreement between our results and those of Morgan and Morton for this syllogism already presents a problem for their interpretation. As noted above (Footnote 3), in our syllogism "the people of Russia" was substituted for "the people of India." It would be rash to assume that the attitude of our *Ss* toward the people of Russia was the same as the attitude of the *Ss* of the previous investigation to the people of India. Yet in both cases we find in the popular form the same shift to Conclusion 4 and away from Conclusion 3, which is favored in the symbolic form in accordance with the atmosphere effect. The interpretation of Morgan and Morton is that this shift "may reflect a wish that they [the Indians] might be warlike enough to be of assistance . . ." (p. 49). It now appears, on the contrary, that this shift occurs where such a wish can hardly be assumed; it seems to be independent of the specific content of the propositions of the popular syllogism.

Our main interest, it will be recalled, is in relating the choice of conclusions to the empirically determined attitudes of our *Ss*. Since the questions regarding attitudes were phrased in the same terms as the conclusions of the popular syllogisms, it is possible to compare directly the two distributions. The attitudes of our *Ss* toward the issues contained in the sample syllogism are to be found in Table 1.

In this case, which is typical of our results, we fail to find the correspondence between choice of conclusions and attitudes which would be expected from the interpretations of Morgan and Morton. Two-thirds of the *Ss* expressed an attitude corresponding to Conclusion 1, which was not selected by a single *S* in the syllogisms test. Likewise in the case of our other syllogisms, the most frequently selected conclusion is by no means the same as the most frequently expressed attitude. In only two cases do we find such correspondence, and in these cases other aspects of the two distributions vary. On the other hand, for Syllogism 5 the most frequently selected conclusion corresponds to the least frequently expressed attitude, while the reverse holds for Syllogism 7, etc.⁷

Experiment I thus fails to lend support to the hypothesis that an individual's choice of conclusions in solving syllogisms is dictated by the attitudes he holds.

C. EXPERIMENT II

Experiment II undertakes in a different manner to investigate the relation between attitudes and choice of conclusions in a syllogisms test. A new

⁷In connection with the procedure of Morgan and Morton, it is of interest to mention the diversity of attitudes obtained.

set of syllogisms was constructed, 10 in symbolic form and 10, matched with the former for structure, phrased in terms of current issues. For reasons to be discussed below, the popular syllogisms were made to be simpler and less cumbersome than those employed by Morgan and Morton. Again, six of our 10 syllogisms were valid, as compared with the preponderance of invalid syllogisms used by the previous investigators.⁸ All of the issues incorporated in the popular syllogisms were concerned with communism, Russia, or related matters. This made it possible to obtain a single rating on attitude toward Russia, which could then be related to the conclusions selected in the syllogisms test.⁹

Examples of our popular syllogisms follow. The correct conclusion is indicated by an asterisk in each case.^{10, 11}

2. If all Russians are Bolsheviks and
Some Bolsheviks regiment people:
 1. All Russians regiment people.
 2. All who regiment people are Russians.
 3. Some who regiment people are Russians.
 4. Some Russians do not regiment people.
 - *5. None of the above is a valid conclusion.
5. If all compulsory education leads to enlightenment and
Some Communist countries have compulsory education:
 1. All enlightenment is found in Communist countries.

⁸Three of our syllogisms were valid for more than one of the presented conclusions.

⁹Attitudes were also obtained on the specific issues included in each syllogism, in the manner described in connection with Experiment I (cf. footnote 4). It was found, however, that Ss tended to avoid extreme answers to the questions, preferring qualified ones; in the case of all but one syllogism, the majority of Ss expressed the view that the statement in the questionnaire was true in some cases. Thus it was impossible to obtain sufficiently large groups holding extremely different attitudes when the groups were chosen by means of this questionnaire.

For this reason and because the answers to these specific questions were, on the whole, consistent with the individual's rating on his attitude toward Russia (even though they were less sensitive), the latter measure was taken to define our groups of Ss holding different attitudes.

¹⁰Syllogism 2 is selected as yielding typical results; Syllogism 5 to show how close the correspondence may be between groups differing in attitude; Syllogism 6 because it gave the largest differences between the two groups of Ss; and Syllogism 8 because it deals with an issue on which differences of opinion were most pronounced for the Ss.

¹¹By way of illustration, Syllogism 2 may be stated in symbolic form as follows:

- If all A is B and
Some B is C
1. All A is C.
 2. All C is A.
 3. Some C is A.
 4. Some A is not C.
 - *5. None of the above is a valid conclusion.

2. All Communist countries have enlightenment.
 - *3. Some Communist countries have enlightenment.
 - *4. Some enlightenment is found in Communist countries.
 5. None of the above is a valid conclusion.
6. If no atheists are found under a dictatorship and
No dictatorship exists in Russia:
1. No atheists are found in Russia.
 2. Some atheists are found in Russia.
 3. All atheists are found in Russia.
 4. Some Russians are atheists.
 - *5. None of the above is a valid conclusion.
8. If no democracies are ruled by fear and
All Soviet territories are democracies:
- *1. There is no rule by fear in any Soviet territory.
 2. There is complete rule by fear in Soviet territory.
 3. There is some rule by fear in Soviet territories.
 - *4. No Soviet territory rules by fear.
 5. None of the above is a valid conclusion.

After all the syllogisms had been solved, Ss were asked to indicate their attitude toward Russia on a seven-point scale ranging from "strongly against" (-3) through "neutral" (0) to "strongly favorable" ($+3$).

The experiment was performed with 66 Ss, two classes of New School students. In order to obtain sufficiently large numbers of individuals differing in attitude, data are also included from 34 preliminary Ss. The results of these Ss, who were used in early attempts to formulate suitable instructions, did not differ significantly from those of the Ss of the main experiment. The preliminary experiments were conducted with a class at Hunter College.

On the basis of their ratings on the attitude scale, individuals were grouped according to their views, and it was our hope to compare pro-Russian, anti-Russian, and neutral groups. Actually, it was not possible to obtain a pro-Russian group large enough for statistical treatment. The anti-Russian group was made up of 29 Ss with scores of -2 to -3 ; while the neutral group was composed of 25 Ss who had checked the attitude scale at 0.

Table 2 shows the distribution of choices of conclusions for our four illustrative syllogisms by Ss differing in their attitudes toward the issues in question. In the case of only two of the 50 conclusions compared (10 syllogisms), is the difference between anti-Russian and neutral Ss significant at the 5 per cent level, as tested by the X^2 method. Thus the results again fail to lend support to the hypothesis that the choice of conclusions to

the syllogisms is dictated by the attitudes one holds toward the issues in question.

It is apparent from Table 2 that both groups of *Ss* (anti-Russian and neutral) tended to select the same conclusions for a given syllogism, whether

TABLE 2
DISTRIBUTION OF CHOICES OF CONCLUSIONS FOR SYLLOGISMS IN POPULAR FORM BY ANTI-RUSSIAN AND NEUTRAL *Ss* IN EXPERIMENT II*

	Conclusion									
	N ¹	%	N ²	%	N ³	%	N ⁴	%	N ⁵	%
<i>Syll. 2</i>										
Anti	2	7	0	0	21	72	20	69	2	7
Neutral	0	0	0	0	21	84	13	52	3	12
<i>Syll. 5</i>										
Anti	0	0	2	7	26	90	17	59	1	3
Neutral	0	0	1	4	22	88	15	60	1	4
<i>Syll. 6</i>										
Anti	1	3	17	59	6	21	15	52	8	28
Neutral	7	28	6	24	1	4	6	24	11	44
<i>Syll. 8</i>										
Anti	24	83	0	0	0	0	24	83	1	3
Neutral	23	92	0	0	0	0	18	72	0	0

*Percentages are greater than 100 in some cases because *Ss* checked more than one conclusion for each syllogism.

or not they were compatible with their convictions. Where differences do exist in the choices of *Ss* holding different opinions, they can hardly ever be related to the difference in attitude. An exception is Syllogism 6, which gave both significant differences; here differences in the choice of conclusions by the two groups of *Ss* are in the direction of the attitudinal difference. In the case of Syllogism 10, on the other hand, a syllogism not presented here, the biggest difference lies in the direction opposite to that which would be predicted from the difference in opinion. With both Syllogisms 2 and 8 the small differences in choice of conclusions by the two groups of *Ss* contradict each other if one views them as statements of attitudes. Similar analyses could be undertaken for the remaining syllogisms where small differences exist in the choices of conclusions by the two groups of *Ss*.

The findings of Experiment II thus confirm those of Experiment I and again point to the conclusion that the results of an individual's reasoning need not be predetermined by the attitudes he holds.

It is not the purpose of the present study to compare in detail the choices of conclusions for the two forms of the syllogisms. It may be mentioned, however, that our results confirm those of the previous investigation in

showing some differences between them. As has been pointed out above, syllogisms in popular and symbolic form show important differences in addition to the fact that attitudes correspond to the former.

Table 3 shows the percentages of correct solutions of the syllogisms in the two forms. The popular syllogisms are solved correctly slightly more

TABLE 3
VALID CONCLUSIONS CHOSEN IN EACH EXPERIMENT FOR POPULAR AND SYMBOLIC SYLLOGISMS

Exp't	Condition	N (Ss)	Valid conclusions			
			Popular		Symbolic	
			N	%	N	%
I	Repetition of Morgan & Morton	45	165	37	117	26
II	Minimum Instructions	66	551	56	464	49
III	Full, Oral Instructions	15	167	82	180	83
	Total	126	883	54	761	47

frequently than the symbolic ones. This is true of the combined data for all experimental groups, and of each experimental group considered separately except Experiment III. While the differences are small and we do not wish to make anything of them, it may be pointed out that they are hardly consistent with the hypothesis that the individual's convictions distort syllogistic reasoning. We do not have strong attitudes about *X*'s and *Y*'s and *Z*'s; yet syllogisms phrased in these terms lead to fewer correct conclusions than those which are stated in terms which do touch strong convictions.

There were some indications in the early part of this investigation that our *Ss*—the great majority of them untrained in formal logic—did not fully understand their task. It cannot be assumed a-priori, for example, that untrained *Ss* understand that their task is to select a conclusion that follows logically from the premises presented rather than one which they consider to be true. The question is a crucial one in the present connection; since we want to test the influence of convictions on syllogistic reasoning it is important not to confuse convictions with such reasoning. Other aspects of the task of solving syllogisms likewise presented difficulties to our *Ss*.

The final problem of the present investigation was, therefore, to study the success of syllogistic reasoning when the task is progressively clarified for the *S*. This was the reason for simplifying the syllogisms employed in Experiment II. This change led to a significant increase, in Experiment II as compared with Experiment I, of correct solutions both for the popular and the symbolic forms of the syllogisms (cf. Table 3).

D. EXPERIMENT III

In order to determine the effect on syllogistic reasoning of clarifying the task for the Ss, Experiment III was performed with 15 Ss, some of them college graduates, enrolled in a course on public speaking. This experiment employed rather full oral instructions on how to solve syllogisms.¹² Ss were shown how to use diagrams in solving syllogisms, and several examples were worked through. When the experimenter had finished her exposition, Ss were allowed to ask questions; and not until the task was entirely clear did the experiment proceed. The syllogisms of Experiment II were used in this new experiment.

The results of Experiment III are presented in Table 3. They show a large increase over Experiment II in correct solutions of both kinds of syllogisms. With clear and full instructions, Ss were able to solve the syllogisms correctly in more than 80 per cent of the cases. The results are significantly different from those of the preceding experiment, P being below .01 for both types of syllogism.

It appears, therefore, that when the task is clarified for him—under the conditions of the present experiment—an individual is able to reason logically with a high degree of success. This impressive change occurred although the actual convictions of the Ss presumably remained untouched.

E. DISCUSSION

It is by no means our contention that motivational processes are without effect on cognitive ones. On the contrary, the importance of such influences may be assumed. But it is only by clearing away such artifacts as those described by Morgan and Morton that it will be possible to arrive at any true understanding of the influence of attitudes on the thinking process.

Thus the issue is *not*: Do attitudes influence the reasoning process? but rather: *How* does this influence occur? It seems to us that Morgan and Morton failed to demonstrate such an effect because they were looking for the wrong kind of effect. Their fundamental error appears to us to lie in their assumption that such influences are arbitrary in nature, that attitudes operate blindly, indifferent to the nature of the material on which they act. Thus the attitude, it is supposed, can shape any material to conform to itself. Indeed, these authors go further. The change produced by the conviction is assumed to be not merely indifferent to the properties of the material, but to violate them. The influence of the attitude is sought for in a distortion.

We may generalize beyond the work of Morgan and Morton to other

¹²Full instructions are available on request.

studies which attempt to demonstrate effects of attitudes and motivation on cognitive processes. Specific examination would show that in a number of other cases as well, these effects are viewed as distortions.

This fact leads to an interesting conclusion. It is the express purpose of writers in this field to overcome the dichotomy which has existed in psychology between motivational and cognitive processes. But it can now be seen that they maintain the dichotomy they are trying to eliminate. For they think of needs and attitudes as determinants of cognitive processes of quite a different order from structural determinants, those arising from the nature of the presented material itself. Needs are thought of as quite foreign to structure, going against structural determinants, producing distortions in the presented material. Motivation, in other words, is looked upon as an extraneous influence. But if the two kinds of process are regarded as antagonistic, it follows that the assumption underlying these studies is not the basic psychological unity of the individual. The dichotomy between the two kinds of functioning—motivational and cognitive—is maintained. Thus these authors perpetuate the idea they seek to combat of the essential disunity of man.

Distortions of cognitive processes by needs or attitudes do, of course, occur. It may be, however, that this is not the most important kind of influence nor that most likely at the outset to give us an understanding of the nature of the interrelation of these processes. As a possibly more fruitful formulation of the problem the following is suggested: What changes can motivational processes produce *in accordance with* the structure of the material on which they act? What changes are possible which do not violate the structure of that material? We are suggesting, in other words, that needs and attitudes operate typically in interaction with cognitive processes, the result of the interaction depending upon the nature of both kinds of process in relation to each other.

While we should like to conclude with a concrete example of the kind of study we propose, empirical research of this kind is almost entirely lacking. For several years Professor Asch and the present writer have been studying informally the question of the effects of an attitude on the understanding of contradictory facts. Taking the point of view that an attitude may function as context, with the particular fact functioning as part, Asch (1, pp. 582-584) has suggested specific forms of interaction between attitude and fact.¹³

¹³Preliminary studies of the influence of attitudes on the understanding of new data have been performed in a manner consistent with the point of view described here (3, 4).

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THE RELATION OF THE *F* SCALE TO A RESPONSE SET TO ANSWER POSITIVELY*

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Quite often attitude or personality scales tap extraneous variables and these extraneous variables spuriously raise or lower reliability and validity. Cronbach (3) labels one group of extraneous variables a response set. He defines a response set as "... any tendency causing a person consistently to give different responses to test items than he would when the same content is presented in different form."

Included in the response sets he describes is the set to answer positively or negatively. He further states that this set is likely to operate on a scale where all the items are worded so as to call for a positive response and where the items are ambiguous.

This paper describes an attempt to relate a measure of response set to answer positively or negatively to one of the personality-attitude scales currently in use.

The assumption underlying the *F* (predisposition to facism) scale is that positive responses to the content of the scale items indicate some aspect of authoritarianism (1). For example, agreement with the statement, "Obedience and respect for authority are the most important virtues children should learn," presumably indicates authoritarian submission.

According to the rationale presented above the *F* scale should be contaminated by a response set to answer positively since the scale is composed of 30 items which are relatively ambiguous and all the items are worded so as to call for a positive response on the part of the authoritarian individual.

A measure of response set to answer positively was constructed by item analyzing the Minnesota Multiphasic Inventory, which is composed of 566 relatively ambiguous items. However, instead of scoring in terms of the

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²This paper was presented at the American Psychol. Assn., Cleveland, September, 1953.

conventional method the total number of "true" responses was calculated. No apparent meaning for such a score could be discovered in the literature. The *MMPI* was scored in this manner for 133 students at the University of California, Santa Barbara. The resulting scores correlated .25 with the *F* scale (significant at the 1 per cent level). Since previous research had indicated that the *F* scale tended to correlate significantly with indices of intelligence (2), it was necessary to check the possibility that the total number of items answered true on the *MMPI* was not serving simply as an additional measure of intelligence. When the "total number of trues" score on the *MMPI* was related to the Altus Verbal Aptitude Scale, the correlation was .08, which was not significant.

In order to shorten the response set measure an item analysis of the *MMPI* was carried out. The extreme groups were the 40 subjects who answered the most true responses and the 40 subjects who had the least true responses. Over 90 items differentiated significantly between the two extreme groups and the 5 per cent level or better. Of the 90 items, the 33 that most differentiated the extreme groups were used and labeled the Plus scale (Table 1).

Next it was necessary to check and see if, perhaps, some over-all syndrome or meaning could be derived from the items. Two methods were used: (a) analysis of the Plus scale by two clinicians and (b) checking the Plus scale items with the *MMPI* scoring cards to ascertain the clinical syndromes they were used to diagnose.

The first method necessitated the enlistment of two trained clinicians who were unfamiliar with the writer or his research. They were asked to read the Plus scale without any particular preamble. After they finished reading it, they were asked if the individuals answering all Trues were of any particular personality type. Then they were asked whether the Plus scale measured authoritarianism.

Clinician *A* made the following comments: "the statements are trivial," "you can find them anywhere," "they were invented without any particular model." He also mentioned that two groups of statements could be pulled out, obsessive compulsive and paranoid, but that these made up only part of the scale. He said that many of the items described the sort of things that could happen to anybody. He then stated that some of the questions reminded him of the authoritarian syndrome and they, "might have come from Levinson (one of the *F* scale authors)." When questioned, he stated that most of the questions were not authoritarian.

Clinician *B* found no one personality type represented by the items. He

described the following components: "middle class morality," "middle class anal character" (with elements of sadism, projection, intropunitiveness, ambivalence), "fairly neurotic, but doesn't hang together," "focus on oral—manic—depressive." When questioned about authoritarianism, he stated that Items 3 and 5 did strike him as being authoritarian.

To summarize the comments, the most striking note is the lack of any

TABLE 1
PLUS SCALE

-
1. I like to read newspaper articles on crime.
 2. Once in a while I think of things too bad to talk about.
 3. When I take a new job, I like to be tipped off on who should be gotten next to.
 4. At times I feel like smashing things.
 5. It takes a lot of argument to convince most people of the truth.
 6. I do many things which I regret afterwards (I regret things more or more often than others seem to).
 7. At times I have a strong urge to do something harmful or shocking.
 8. I have met problems so full of possibilities that I have been unable to make up my mind about them.
 9. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
 10. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.
 11. Often I can't understand why I have been so cross and grouchy.
 12. I commonly wonder what hidden reason another person may have for doing something nice for me.
 13. I certainly feel useless at times.
 14. I feel that I have often been punished without cause.
 15. I like to know some important people because it makes me feel important.
 16. Some of my family have habits that bother and annoy me very much.
 17. Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world."
 18. I do not blame a person for taking advantage of someone who lays himself open to it.
 19. I have often felt that strangers were looking at me critically.
 20. Once in a while I feel hate toward members of my family whom I usually love.
 21. I am more sensitive than most people.
 22. My mother or father often made me obey even when I thought that it was unreasonable.
 23. Sometimes I become so excited that I find it hard to get to sleep.
 24. Sometimes some unimportant thought will run through my mind and bother me for days.
 25. At periods my mind seems to work more slowly than usual.
 26. I wish I could get over worrying about things I have said that may have injured other people's feelings.
 27. People often disappoint me.
 28. I have often felt that difficulties were piling up so high that I could not overcome them.
 30. People have often misunderstood my intentions when I was trying to put them right and be helpful.
 31. I am apt to hide feelings in some things, to the point that people may hurt me without their knowing about it.
 32. It makes me angry to have people hurry me.
 33. Sometimes I am sure that other people can tell what I am thinking.
-

one personality type emerging from an analysis of the item content. Rather, the triviality of the items and lack of over-all organization were stressed. It is true that several of the items smack of authoritarianism, but not enough to account for the correlation. Thus, the clinical analysis bears out the hypothesis that the Plus scale is a group of 33 relatively meaningless ambiguous statements.

When the items were checked against the clinical scoring cards for the *MMPI*, it was found that 22 of the 33 items were used on one or another of the clinical scales (Table 2).

TABLE 2
NUMBER OF ITEMS FROM THE PLUS SCALE THAT CONTRIBUTE TO SCORES ON THE
CLINICAL SCALE OF THE *MMPI*

Clinical scales	No. of items when answered true
L	0
K	0
F	0
Hs	0
D	1
Hy	0
Pd	1
Mf (boys)	1
Mf (girls)	3
Pa	1
Pt	5
Sc	4
Ma	6

Several of the personality trends might be extracted that characterize the extreme scorers on the Plus scale. For instance, individuals with the response set to answer true appear possibly somewhat manic, especially in view of the clinicians' judgment that was expressed. However, the dominant note is a lack of any common thread or syndrome running through the items.

The *F* scale, the Altus Verbal Aptitude scale, and the Plus scale were then administered to 59 University of California, Santa Barbara, students in an introductory psychology course. The correlation between the *F* scale and the Plus scale was .41 (significant at the 1 per cent level), while the correlation between the Plus scale and the Altus Verbal Aptitude scale was —.096 which is not significant.

On the basis of these data, it is concluded that the hypothesis that the *F* scale is related to a measure of response set to answer positively has been supported. Therefore, it is necessary to interpret scores on the *F* scale with caution until the extent to which the *F* scale is contaminated by the

response set to answer positively is determined, or until some understanding of the meaning of the response set to answer positively is available.

One immediate application of these results is that the correlation between the *F* scale and other similarly constructed measures such as the Ethnocentrism and Anti-Semitism scales may be partially accounted for by the response set to answer positively.

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A SCALE FOR MEASURING INTELLECTUAL CONVICTION*

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A. INTRODUCTION

Classical psychoanalysis has emphasized that man's intellectual strivings are often disguised expressions of primitive impulses, and that an individual's beliefs may serve to defend the ego against these impulses (8, 22).

A complementary emphasis which is beginning to exert an increasing influence upon present-day psychological and psychoanalytic thought (2) is that man has a need also for self-actualization (13, 14, 15) or growth (18), and with this a need to be cognitively correct, i.e., to hold rational rather than rationalized beliefs, even when it means knowing the worst about himself (3, 22, 25).

How is one to distinguish empirically a rational from a rationalized belief? Put another way, is it possible to distinguish intellectual conviction from dogmatic conviction?² To our mind, it is desirable to make such a distinction if we are to admit the possibility that the resistance to change of beliefs in, say, an Einstein is of a genotypically different order from the resistance to change in, say, a Hitler; or that a therapist's resistance to change in attitude and belief is possibly of a different order from his patient's.

Relevant here are the recent studies by Goodstein (9) and Taylor (23) in which they hypothesize that those holding to extreme attitudes are likely to manifest a greater tendency toward rigidity (9) or premature closure (23) than are those having more moderate attitudes. Such a formulation ignores the possibility that one can hold extreme attitudes on the basis of "genuine" intellectual conviction as well as on the basis of dogmatic conviction. It seems to us, furthermore, that such a formulation contains the hidden value judgment that the best way to avoid rigidity or premature closure is to hold only moderate, middle-of-the road opinions on everything.

One way out of this difficulty is to assume that there are differences in kind and in bases for intense beliefs. But as soon as an attempt is made to

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¹The research reported here was conducted while the senior author was a Faculty Research Fellow of the Social Science Research Council.

²Elsewhere (20) the senior author has tried to approach this problem through an analysis of the nature and meaning of dogmatic conviction.

distinguish such bases empirically, value judgments again may enter the very formulation of the research problem. Herein lies a trap: by what criterion is one to say that resistance to change is in one case a manifestation of rational consideration; in another, of rationalizations?

Our purpose here is to offer a measure of intellectual conviction which tries to side-step this difficulty. One criterion of intellectual conviction is based upon the assumption that, when rationalizing, an individual accepts and defends his beliefs with indifference as to the logic or illogic of his arguments; when rational, he rejects beliefs whose content is acceptable, beliefs he would otherwise accept, when he perceives the bases for holding to these beliefs to be unsatisfactory or irrelevant.³ The construction of our scale of intellectual conviction is based upon this criterion.

B. PROCEDURE

Oral and written statements of personal and political content were collected from various sources. In a preliminary study a total of 110 items was used. These included 52 intellectual conviction items.⁴

In two follow-up studies the 20 most discriminating intellectual conviction items were used. These are shown in Table 1. Also employed in these two follow-up studies were other scales designed to measure authoritarianism (1), rigidity (10), dogmatism (19, 20, 21), ethnocentrism (1), opinionation (19, 20), political-economic conservatism (1), and anxiety (26). Furthermore, in the first follow-up study a cognitive measure of rigidity, the Luchins problems (12) were employed.

Subjects were college sophomores taking courses in social science and in introductory psychology. The full questionnaire was administered during the regular class hour to the whole class.

The instruments were in the form of an agree-disagree scale ranging from +3 to -3, with the 0-point excluded. Instructions were those employed in the research on "the authoritarian personality" (1). The Intellectual Conviction Scale was scored in reverse; that is, the higher the score the less the assumed intellectual conviction.

³"... I utterly reject the argument that we ought to grant all men their rights just because if we do not we shall give Soviet Russia a propaganda weapon. . . . It insultingly implies that were it not for the Communists we would not do what is right.

"The answer to this argument is that we must do right for right's sake alone" (17).

⁴The remaining items were concerned with exploratory attempts to measure other aspects of intellectual conviction and of self-actualization (13, 14, 15).

TABLE 1
THE INTELLECTUAL CONVICTION SCALE

1. The reason we should show consideration for others is that they will reciprocate and show consideration for us.
2. Radio and TV programs should employ only loyal Americans, so as not to lose their audiences.
3. What is wrong with socialization, as seen in England, is that it results in severe rationing.
4. The reason you should not criticize others is that they will turn around and criticize you.
5. The American economic and political system is preferable to the Russian, because the Soviet system means long hours at poor wages.
6. The fallacy in Hitler's theories is shown by the fact that, after all, he lost the war.
7. The reason that criticism is a poor policy is that it prevents you from making and keeping friends.
8. Do unto others as they do unto you.
9. It's better not to talk about people behind their back, because sooner or later it gets back to them, and you get a reputation as a gossip.
10. Negroes deserve equal treatment, because there is as yet no scientific evidence showing that there is any real difference in body odors.
11. The fact that God exists is proven by the fact that so many millions of people believe in Him.
12. The trouble with Communism is that, in all of human history, it has never worked.
13. Taxation without representation is wrong because sooner or later people rebel.
14. If a man fails to practice what he preaches, there's something wrong with what he preaches.
15. You should only criticize others when you are above reproach yourself.
16. The reason it's better to let people make up their own mind is because they won't follow your advice anyway.
17. Whether it's all right to manipulate people or not, it is certainly all right when it's for their own good.
18. Appreciation of others is a healthy attitude, since it is the only way to have them appreciate you.
19. Generosity is a healthy way of life, because he who casts his bread upon the waters shall have it returned ten-fold.
20. Whether one approves of filibustering or not, it is all right if it's for a good cause.

C. RESULTS AND DISCUSSION

Table 2 shows, for each study, the corrected reliability of the Intellectual Conviction Scale and the correlations of this scale with other variables.

In a preliminary study with 101 cases the corrected reliability of the 52-item Intellectual Conviction Scale was .93 (not shown in Table 2). For the two follow-up studies (referred to as Studies I and II in Table 2) with the 20 best items the corrected reliability was .76 and .73.

It can further be seen from Table 2 that the results of the two follow-up studies are highly similar to each other. Intellectual conviction correlates to a significant degree with each of the measures employed. It correlates highest with measures of authoritarianism (*F*-Scale) ($-.71$ and $-.61$),

rigidity ($-.59$ and $-.40$), and dogmatism ($-.55$ and $-.46$); next highest, with opinionation ($-.46$ and $-.52$), and ethnocentrism ($-.49$ and $-.35$). Its lowest correlations are with conservatism ($-.38$ and $-.26$), anxiety ($-.38$ and $-.24$), and Einstellung ($-.27$).

TABLE 2
CORRELATIONS BETWEEN INTELLECTUAL CONVICTION AND OTHER VARIABLES

	Study I ($N = 153$)	Study II ($N = 186$)
Intellectual Conviction	.76*	.73*
Authoritarianism (<i>F</i> -Scale)	-.71	-.61
Rigidity	-.59	-.40
Einstellung (Luchins Test)	-.27**	
Dogmatism	-.55	-.46
Ethnocentrism	-.49	-.35
Opinionation—Total Scale	-.46	-.52
Right Opinionation	-.49	-.52
Left Opinionation	-.08	-.19
Opinionated Rejection	-.41	-.44
Opinionated Acceptance	-.39	-.46
Conservatism (Right Opinionation minus Left Opinionation)	-.24	-.28
Conservatism (<i>PEC</i> Scale)	-.38	-.26
Anxiety	-.38	-.24

*Corrected by Spearman-Brown formula.

**Point bi-serial correlation ($N = 72$).

These correlations are all significant at the .05 level or better and all are in the direction predicted: all correlations are negative.

The reliability of the Intellectual Conviction Scale and its relation to other variables suggests that it identifies instances where the "right" belief is held for a "wrong" reason. By distinguishing between the content of a belief and its basis, the scale catches some of the false positives, instances of phenotypically-democratic attitudes expressed through conformity or compliance (24) rather than through intellectual conviction. It identifies rationalizations of a "pseudodemocratic personality" (22).

Operationally, it does no more than identify instances where a rationalization is accepted. Strictly speaking, agreement with the scale items provides a rigorous criterion only for the absence of intellectual conviction; disagreement with the scale items provides no more than presumptive evidence for the presence of intellectual conviction. We have assumed that individuals rejecting an item have done so on the basis of unwillingness to accept a rationalization.

The correlations of this scale with other measures indicates that those presumed to be high in intellectual conviction are low in authoritarianism,

rigidity, dogmatism, opinionation, ethnocentrism, conservatism, and anxiety. Both on theoretical and on clinical grounds we would expect the individual with intellectual conviction to display, in place of an ego-defensive motive to misperceive himself, a self-actualizing motive to perceive even disapproved aspects of self (11, 15, 18); and consequently to show, in place of anxiety indicative of inner conflict (16), self-acceptance (4); in place of rigidity, stability (5); in place of impulsivity, spontaneity (13); in place of authoritarianism, democratic attitudes and character structure (14); in place of ethnocentrism, freedom from cultural taboos, stereotypes, and value judgments (13); in place of conservatism, objectivity towards society (14); in place of a derogatory attitude reflected in opinionated speech, compassion, respect, and an "unhostile sense of humor" (13).

D. LIMITATIONS OF THE STUDY⁵

The empirical portion of this study consists essentially in the use of a Likert-type scale, and in the validation of such a scale primarily against other Likert-type scales. Two measures employing identical methods of measurement are not wholly independent; response set or intelligence (6, 7), for example, may account, in whole or in part, for the results obtained.

It was to overcome this sort of limitation that we employed an independent cognitive task, the Luchins Einstellung problems (12), in Study I. While the correlation between the Intellectual Conviction Scale and Einstellung is low it is significant beyond the five per cent confidence level. This finding obviates, to some extent at least, the full force of the methodological limitation offered above.

At the same time, the fact that most of the validating measures employed in the present study are of the questionnaire variety points to a need for further research to determine more adequately the validity of the Intellectual Conviction Scale (e.g., other cognitive tasks, projective techniques, performance in real-life situations). Pending such additional evidence it is justifiable to regard the present findings as but a first approximation in the study of intellectual conviction.

E. SUMMARY

A scale designed to distinguish intellectual conviction (rational beliefs) from dogmatic conviction (beliefs rationalized on a basis of conformity, expediency, etc.) is offered. The criterion of intellectual conviction is ex-

⁵We are indebted to Drs. I. Sigel and T. Cohn for helping us become aware of these limitations.

tent of rejection of statements when such statements are supported by irrelevant considerations.

The initial Intellectual Conviction Scale, composed of 52 items, had a corrected reliability of .93. In two follow-up studies wherein the 20 best items were employed, the corrected reliabilities were .76 and .73.

The Intellectual Conviction Scale correlates highest with measures of authoritarianism (the *F*-scale), rigidity, and dogmatism (r is $-.40$ to $-.71$); next highest with opinionation and ethnocentrism (r is $-.35$ to $-.52$); lowest with conservatism, anxiety, and Einstellung (r is $-.24$ to $-.38$). All correlations are significant beyond the .05 level.

Limitations of the study and needs for further research resulting from these limitations are discussed.

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SHORT ARTICLES AND NOTES

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DIFFERENCES IN POLITICAL AND SOCIAL ATTITUDES OF PRO-EISENHOWER AND PRO-STEVENSON STUDENTS*

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In a study by Milton (3) a few months prior to the presidential nominating conventions for the two major political parties in 1952, it was found that there were significant differences in California *F*-Scale scores among people favoring different potential presidential nominees. It was also found that those favoring Eisenhower and Stevenson had the lowest *F*-Scale scores.

With these findings as a starting point, the present study compared a group of Eisenhower supporters and a group of Stevenson supporters with regard to certain personal data and political and social attitudes, as reflected in their responses to a conservatism-radicalism questionnaire and to the *E* (Ethnocentrism) and the *F* (Fascism) scales developed by the California group (1).

Two classes of college students in introductory psychology and one in the psychology of adjustment served as subjects ($N = 102$). During the week prior to the 1952 national presidential election they completed a questionnaire which included 11 personal data items, 10 items expanded from Centers' Conservatism-Radicalism Questionnaire, seven items selected from the *E*-Scale, and 30 items of the *F*-Scale.

Of the 102 subjects, 62 preferred Stevenson and 40 Eisenhower. These results correspond closely to the popular vote figures for Wayne County and were fairly representative of Wayne University, if results of an almost simultaneous campus poll can be accepted as representative. No relationships appeared to exist between candidate preference of the respondents and party preferences of parents. Candidate preference was not related to income or occupational group of parents. A significantly higher proportion of Protestants preferred Eisenhower, while Jews and those expressing no religious affiliations preferred Stevenson. No trend was found for the

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¹This discussion is based on a paper presented at the convention of the Midwestern Psychological Association in Chicago on May 1, 1953.

Catholic or Greek Orthodox respondents. All five Negroes in the sample supported Stevenson. Eisenhower drew three-quarters of his support from Republicans and one-quarter from Democrats. Stevenson drew 88 per cent of his support from Democrats. Seventy-two per cent of Eisenhower supporters favored Dewey in 1948, 21 per cent Truman; sixty-one per cent of Stevenson supporters favored Truman in 1948, 13 per cent Dewey, and 13 per cent Wallace.

On the modification of Centers' Conservatism-Radicalism Questionnaire (2) Eisenhower supporters chose the conservative alternative more frequently for all 10 items. Six of the differences were significant at the five per cent level.

Likewise on the *E*-Scale, Eisenhower supporters selected with greater frequency the alternative designated by the California group as more "ethnocentric" for all seven *E*-Scale items. (Items mentioning specific religious or racial groups were not used.) For five of the items the differences were significant at the five per cent level.

On the *F*-Scale, pro-Eisenhower respondents obtained significantly higher *F*-scores than pro-Stevenson respondents. Moreover, they obtained higher scores on 28 of the 30 items of the *F*-Scale with differences for 15 items significant at the five per cent level.

These findings would suggest, according to the interpretation of the California group, a greater tendency toward authoritarianism, ethnocentrism, and political conservatism on the part of the pro-Eisenhower group. Significant divergences in political attitudes and social orientations exist between pro-Eisenhower and pro-Stevenson respondents.

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BOOKS

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Conditions. Only those books that are listed below in this section are eligible for such reviews. In general, any book so listed contains one or more of the following traits: (a) Makes an important theoretical contribution; (b) consists largely of original experimental research; (c) has a creative or revolutionary influence in some special field or the entire field of psychology; (d) presents important techniques.

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The Journal of Social Psychology, 1956, 44, 147-149.

(Witkin, H. A., Hertzman, M., Machover, K., Meissner, P. B., & Wapner, S. *Personality Through Perception*. New York: Harper, 1954. Pp. 571.)

REVIEWED BY MURRAY H. SHERMAN

This book represents an attempt to bridge the broad gap between experimental and clinical psychology. Recognizing the fact that perception is a field which has been explored both by the experimentalist and by the clinician, Witkin has been able to utilize techniques from both disciplines. His explorations begin from experiments which indicate that people vary widely in the extent to which they utilize bodily and other internalized cues as compared with situational cues in their orientation to external reality.

Witkin and his associates have devised an extremely ingenious series of experiments which yield precise measurements of field dependence versus self or internal awareness. He has applied these tests to a variety of populations including a normal college group, a mental hospital group, and children at various age levels from year eight. These groups were also given a complete battery of projective tests and the results of this large mass of data have been minutely analyzed in terms of many interrelationships.

Witkin's findings include the following: (a) People vary both widely and consistently in their tendency to depend upon the external field as compared with bodily and other internalized cues. (b) People who depend mainly upon internalized cues tend to be self sufficient, mature, and actively analytic. (c) People who are primarily dependent upon the external field tend to be immature, tense, unaware, and passively ineffectual in their personality behavior. (d) Sex differences are discernible which indicate that women tend to be more field dependent than men in most situations; they can, however, use internalized cues when necessary. (e) Field dependence versus self awareness is also discernible among children and can be charted developmentally from year eight through adulthood; these changes can be related to personality growth within our culture. (f) Field dependence and self awareness are related to findings on projective tests; these test results indicate that field dependent subjects are more emotionally disturbed than self aware subjects. (g) Hospital patients yield experimental and test data comparable with those noted above.

The projective test data are analyzed by categorizing the results of each test under the headings of "coping" and "introspective" behavior. Although this method of analysis has yielded significant results and seems therefore to be justified, it seems to this writer that the limitations imposed on the data by the concepts of coping and introspection have concealed many test results. For example, in scoring the Rorschach it was found necessary to devise coping and introspective scores mainly by the *absence* of particular Rorschach scores. Thus a subject received an M (introspective) score if his protocol contained two or fewer human movement responses. Hertzman recognizes the fact that this method of analysis prevents our knowing how many human movement responses were actually given by field dependent and self aware subjects. Conclusions to the analysis are stated largely in terms of the subjects' efficiency in coping and introspective behavior.

This method of analysis was followed on most of the projective tests. However, since the writers' orientation was primarily an empirical one, some of the more specific results are also cited. K. Machover indicates that among the self aware group many figure drawings showed a capacity to identify with the opposite sex, whereas this was not true among the field dependent subjects. Hertzman discovered that self aware subjects tended in some instances to give a relatively large proportion of anatomy responses whereas this was infrequent in the field dependent group. Field dependent children showed relatively little organization in their play activity and frequently used animal figures in a bizarre way. Self aware children showed a high extent of organization in their play activity and made appropriate use of animal figures. In general these findings are explained by the writers as evidence of greater resourcefulness and personality stability among self aware subjects.

The major finding of this total study is the broad classification of field dependence versus self awareness. This concept will doubtless have considerable influence upon future psychological investigations, since these traits have been shown to be so intimately and meaningfully related to developmental and projective test patterns and to sex differences. I would be interested in the direct application of this classification scheme to psychodiagnostic testing. The developmental continuum of field dependence-self awareness seems to have some relationship to the concepts of constriction-dilation and the color-form-movement continuum on the Rorschach (3, 4, 5).

Several other current concepts of personality classification appear related to the idea of self awareness-field dependence. Reisman's (2) image of the "other-directed" personality seems quite close to Witkin's picture of field

dependence. Also, a cybernetic model (6) of psychic equilibrium could be constructed around the scheme of internalization of cues. Cybernetically speaking, field dependence could be conceived of as inborn tendency towards entropy which is held in bay by the feedback represented by the development of internal awareness.

In addition, there may be some relationship between Witkin's measures of self awareness and the psychoanalytic concepts of introjection and identification (1). Clinical instruments in these areas would have a direct diagnostic application in the testing of depressive and paranoid mechanisms. The future of psychodiagnostic testing seems to lie in the general direction of devising measures which can be directly related to dynamic and structural patterns of personality development. Dr. Witkin's work is a broad step in this direction.

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SOME ASPECTS OF PERSONALITY STRUCTURING IN INDIAN (HINDU) SOCIAL ORGANIZATION*

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A. INTRODUCTION

It is now generally recognized in personality and culture studies, that socialization and specially early childhood training largely determine the pattern of personality structure. These very forces also set the course of later development. Personality processes thus serve to link various aspects of a culture (26, p. 4); they become a barometer of a given social organization. Several methods of personality study have been developed, but the projective methods are best suited to determine the nature of basic personality structure as it evolves from an interaction of the organic material with social forces. However, the use of projective techniques for the study of personality in different cultures is relatively recent. It has also been shown that socio-cultural factors are more important than racial ones in determining personality pattern (5, 18). Judging from the literature available the Rorschach test appears both a highly developed technique and relatively culture free. It probes into the basic personality structure which is largely a product of early training and education given to a child. Earlier Rorschach studies such as those of Hallowell (17) and Oberholzer (20) were essentially anthropological in character and were most often focussed on tribes or small groups. The study of relatively bigger groups as for instance by Anna Roe (21), or of national character as by Abel and Hsu (1,2) and deVos (13) have commenced only lately. Rorschach studies of social groups therefore are likely to be revealing not only of the personality structure as moulded by a given culture, but of the psychological makeup of the culture itself.

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B. PURPOSE

The object of the present paper is to study the relationship between some aspects of Indian culture and the nature of personality which it fashions; or more specifically, how well does the personality pattern as projected by the Rorschach test reflect the operation of the influence of early childhood experiences, family discipline, and social pressures. It may thus be possible to evaluate the influence of some cultural factors in Indian social organization on personality structure. The paper thus first reports the findings of a Rorschach experiment on a small group and later it seeks to interpret the findings in terms of the social forces working in that society.

C. METHOD

The Rorschach test was individually administered to a group of 24 Indian students at Chicago. The scoring of the test records was done after Beck (6, 7, 8, 22). A summary of the quantitative findings is given in Table 1.

TABLE 1
SYNOPSIS OF QUANTITATIVE FINDINGS ON RORSCHACH VARIABLES ($N = 24$)

Variable	M	σ
R	35.00	4.09
<i>Location:</i>		
W	9.71	3.79
D	21.95	7.09
Dd	3.34	4.18
S	2.50	2.61
<i>Determinants:</i>		
M	4.50	3.82
F+	13.67	4.01
F	5.45	5.01
F—	2.50	2.90
FC	2.08	0.48
CF	1.21	0.48
C	0.55	0.29
Y, all combined	1.56	1.45
V, all combined	0.76	0.12
<i>Content:</i>		
H, all	6.62	3.16
A, all	12.63	3.51
At	3.00	2.69
<i>Ratios:</i>		
F+ %	85.67	10.09
A %	38.13	11.73
ΣC	3.88	3.01
T/1R (in seconds)	28.65	23.10
P	6.50	2.20

The mean age of the group was 29.75 ± 5.72 years. The subjects came from 11 different Indian states. Of these 21 were males, three females. Twenty professed Hinduism and two each Christianity and Muslim faith. All the subjects came from the Middle socio-economic group. The group is rather select in that it comprises members drawn from the educationally superior section of society. These students were selected for training abroad because they appeared to show capacities for profiting from further study. They seemed to have had a broad education and a relatively stable personality. They are, however, like the rest of us, products of their experiences, a concretion of their culture. They are not representative of the population and hence we cannot generalize about the average Indian personality from the present data. They are nevertheless precipitates of their own culture. A study of these subjects helps us observe how certain personality processes articulate various social forces operating in Indian culture. The conclusions here drawn may be also of some value in formulating hypotheses for an understanding of Indian personality.

D. RESULTS

The treatment of the Rorschach data (11) specially that of a group as in culture studies (4, 12, 16) is still in its rudimentary stages. The real problem in culture studies appears to be that of finding some method of identifying a psychological pattern as revealed by the scoring variables and of assessing the consistency with which this configuration is adhered to by the members of the sample. A satisfactory solution of the problem may involve some modification of multivariate analysis technique pending which however the conventional statistical methods are to be cautiously employed.

The experimental findings in the present study etch out the picture of a group intellectually well endowed, emotionally mature, and in good social and emotional rapport with the world. Drive is liberated and an almost optimum balance obtains between personal productive capacity and the output. An energetic intelligence seems to be active, but it is less tuned to the obvious and the practical; an abstract theoretic mind appears to be operating.

Both thinking and behavior appear adaptive. Thinking is controlled and methodical with frequent irregular trends, but never rigid or confused. The subjects participate in communal thinking and they seem to be moderately interested in other human beings. A firm and strong ego guarantees a stable personality. In some cases poor perception arising usually from personal needs ruffles this harmony.

Mature and healthy fantasy with fair amount of imaginative living seems to characterize the group. A few subjects display exceptionally brilliant minds whose perceptions are vibrant with intense and vivid imagery. A large majority of these fantasy operations involve striving, betraying an effort to free oneself from restraining influences. A certain amount of determination and persistence to reach goals is indicated.

Emotions are generally mature and stabilized, except in a few cases where affective lability gets the better of their discretion. There is very little ego-centric affect. Generally the members are stable and would not be easily shocked and unnerved. A few with vulnerable emotions are easily excited. To them it is a temptation to act, but their ego would not relax. Their ego vies with emotions; more often a strong ego emerging victorious thus choking off the affects; at other times returning impoverished, but rarely yielding its control. Anxiety is generated. In the healthier ones sublimation in the form of art, nature, botany, and architecture responses relieves the stress considerably.

Such ego control however does not always suffice. Withdrawal, more often passive, as a defense against anxiety is most commonly employed. The dysphoric mood in some cases, though rarely, is leavened with painful feelings of inadequacy and inferiority. The average as such is not very high, but a large number of anatomy responses project anxiety in bold relief. The presence of hard and bony anatomy as in Chinese (2, p. 294) suggests a great control over emotional conflicts. Others, generally the superior ones, prefer to retire into their fantasy.

The problem of fantasy brings the question of experience balance to the fore. The experience balance appears ambiequal, though a little dilated. The affective energy is released but is in no danger of upsetting the individual. Ambiequality savours of a compulsive trend. The average however is slightly misleading. In most cases the inner potential exceeds affectivity, unlike what is found in the Japanese (13); the near ambiequality resulting from an unusually heavier loading of a few color responses in a few records. On the whole a compulsive trend leaning towards introversiveness is indicated.

Such is the personality pattern of the group as projected by the Rorschach test. The next step is to examine the forces in Indian social organization which operate during childhood and in later years and to observe how these cultural influences are precipitated and linked in this type of personality.

Weaning is among the earliest of emotional experiences that initiates personality development. Usually a late and gradual weaning of the Indian

child, compared to western standards, would provide fewer opportunities for traumatic experiences implying rejection. A certain amount of permissiveness of early behavior as in Sinhalese (24, p. 158) is also characteristic of the early infantile period in India. Early childhood finds mother as the disciplinarian, as in the Japanese (10, Ch. 12) father having very little to do with it. Mother in her rôle of the trainer at this early stage would appear a representation of the superego for the child. The joint family system provides opportunities for vicarious satisfaction of the child's love needs.

As the child grows up there is more or less a sudden change in the authority figure. The family hierarchy beginning with father as the head of the family (where there is no grandfather or granduncle) through mother and others in respect to their ages and position in the family defines the status of the child. This may pave the way for the growth of status personality later. The hierarchy also defines a code of behavior expected of the child. The family thus assumes the guise of an hierarchical structure rather than that of a companionate group. A relatively rigid conformity to family and social discipline is demanded of the child and in case of deviation society looks askance at his behavior. The child is allowed certain permissiveness within his defined status rôle, but beyond it a relatively rigid and uncompromising obedience is demanded of him. The father figure takes over the superego rôle from the mother. Another element in the constitution of the superego would be the rôle of guilt and shame. In the Japanese (10, Ch. 8; 13) it is modelled by shame rather than by guilt. Shame is a psychological reaction to social pressures felt by the person as assailing him from outside. Guilt arises from internal sanctions which have precipitated by the assimilation or interiorising of social values by the person. Both the introjection of the social values and the social pressures are fairly strong in Indian society.

A shift from the permissiveness of the early childhood to rigid obedience to social code, with a decrease in affection experienced by the adolescent might lead to insecurity and anxiety in him. Such a thing appears to happen in Sinhalese (24, p. 157). The Japanese too show a constricting anxiety (13). But in the Indian child security would be guaranteed by his status and rôle within his social structure. This is the conclusion arrived at by Taylor (25, p. 5, 9). Consequently low anxiety may be expected. On the contrary the Rorschach reveals a good number of dysphoric reactions and large number of anatomy responses. Probably anxiety develops due to the inability of a person to conform to social requirements. Anxiety is a reaction to social situation, just as fantasy fulfils a biological need (9, p. 37).

It is interesting to note that records showing increase in the area of anxiety also manifest relatively greater conventionality.

The hierarchical organization of the Indian family may also be responsible for its apparently authoritarian character (3). It demands somewhat rigid and uncompromising obedience not only to social mores but also to the family head. The authoritarian character of the family however is unrelated to the authoritarianism of the father. The father is not an autocrat; he is rather a trustee. Obedience is to the forces and pressures in the institution of family rather than to the person of the father. Consequently any revolt if expressed is likely to be directed towards certain institutions in the family rather than towards the father. The child as an adult will repeat the same rôle as his father. A firm ego incorporating the values of society is likely to be built in the individual from an early period. This would guarantee a stable personality leading to a rigid and compulsive trend and to a shrinking of the affective life as seems to be indicated in the Rorschach. The extensor movement probably projects this striving of the individual to free himself from these restraining forces which were early built in him due to authoritarian influences and constrictive social pressures. There is not sufficient evidence to show that the presence of ambitiousness is also related to this mechanism.

Similarly the abstract theoretic attitude might be a product of certain cultural influences. Philosophic and moralistic tradition in India places reason above emotion. A life of discriminative and disinterested action, says the Gita, is to be cultivated. The emphasis on intellect and the intellectual control of affective life is strongly advocated. No wonder then that this pattern of intellectual control as indicated in the Rorschach is developed from early childhood. Another consequence of this may be the treatment of affect. Emotions, save the social and religious, are not encouraged. Emotions must be socialised. Affect then lacks that intensity found in some other cultures not because it is suppressed or repressed but because social living does not focus individual's attention on it. Whether this is related to low egocentric affect in the Rorschach cannot be concluded from the present study.

Hostility and aggression are tabooed. The doctrine of Ahimsa reinforces this form of thinking. Socially it is deviant to show aggression as in Chinese (19, p. 239). This is reasonable to expect in a culture where suffering and masochistic behavior is valued more than achievement and drive. For, according to this logic, suffering is difficult to endure and demands great self control because of the temptation to retaliate. Consequently a high premium

is laid on self control. A person with a strong ego and with an ability for self control would in such culture be considered superior to one who can strive and conquer things outside himself. It is not surprising then that this becomes the ideal of personality development.

In the course of personality development, early experiences, and later social learning develop certain character hardenings which evolve mechanisms for regulating behavior. Such "armor-plating of character" (Reik, T.) protects a person from outside threats. Culture forces act selectively and favor the growth of certain forms of egodefense mechanisms by selecting those characteristically suited to it. A strong ego can resist external threats; it wards off the temptations by exercising self control. This appears to be one form of character hardening that Indian culture tends to favor.

Another mechanism is that of withdrawal into passivity. In a group where a rigid and authoritarian pattern obtains, revolt against the seemingly inexorable social pressures would invite trouble. Safety would lie in submitting and withdrawing, in being passive and anergic. This appears to be the major defense system in use. It is not possible to generalize from the present data, however, if this may be the typical adjustive technique in Indian society. But a latent survival of hostile feelings cannot be doubted. A society with caste structure is likely to have such generalized feelings. It is not individual's but group's authority that is challenged. In many these pressures are relieved in fantasy in a generalized form. That may be the reason why, unlike the German (23, pp. 47-50), passivity does not lead to aggression; for fantasy serves as a safety valve. A study of the contents of fantasy, for instance, in dreams may throw light on the types of themes which symbolise this bid for freedom.

Contemporary ego psychology seems to suggest that the defense operations of ego provide an excellent clue to a person's behavior (14, 15). In psychopathology the nature and the seriousness of disorder may to some extent be gauged by examining the types of defense mechanisms a patient selects. Childhood training and early experiences favor the growth of certain ways of meeting life situations. Culture forces favor certain channels of communication and ways of reacting and adjusting, just as the same influences censure other forms of behavior. May it not be then that the personality structure of a people and consequently the psychological makeup of a culture itself can be best understood by analyzing the "armor-platings" and defense system that a culture tends to evolve in its members. It must however be appreciated that the present day understanding of both the operations of ego and its defense mechanisms even in psychopathology is far from satisfactory.

However, with whatever little we know about it this approach to culture-personality study seems promising. It may be useful for understanding personality dynamics, specially for observing how personality processes link various aspects of a culture.

E. SUMMARY

The paper attempts to study the implications of the hypothesis that personality patterns organize the forces operating in a social milieu. The findings of a Rorschach experiment on a group of 24 students from India are interpreted in terms of the childhood experiences, family discipline, and social pressures. An ambiequal pattern leaning toward introversiveness is indicated. This is found to be the product of early permissiveness, subsequent rigidity of behavior code, and later status rôle. The authoritarian character of the Indian family structure and the early socialization process are found to be largely responsible for the evolution of rigid control and withdrawal mechanisms. The paper concludes by suggesting that the study of personality-culture phenomena may be profitably conducted by analysing the defense system that a culture tends to evolve in its members.

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FACTOR ANALYSIS OF RÔLES PATIENTS TAKE IN THERAPY GROUPS*¹

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A. INTRODUCTION

In most articles and books on group therapy there are discussions as to the various rôles patients may take while interacting in therapy groups. These rôles have been given names such as "provocateur," "patient sub-leaders," "parent surrogate," or "non-leader." The value or limitations of having varying combinations of rôles in therapy groups has also been expounded. Unfortunately, the amount of discussion about these rôles and belief in their existence has not been matched by careful scientific investigation. This study was designed to determine if rôles as they are generally conceived can actually be demonstrated to exist and to describe the behavior characteristics of such rôles as may be found.

For this study, rôle is defined as that behavior of a patient in a therapy group which differentiates him from some persons but also identifies him as being similar to a class of persons in the groups used in the study. This definition of rôle is clearly dependent on the technique, in this case factor analysis, for determining similarity or grouping of people. Thus, if a cluster of similarly behaving persons can be isolated, the particular general behavior of these individuals would be considered a rôle. Should all patients be found to behave very much alike, then no distinct rôles could be claimed, or if all patients act in totally unique ways then there can be no general rôles but only a different rôle for every person. Therefore, finding clusters of patients would lend support to the notion that there are certain kinds of group be-

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¹To save printing costs, the checksheet used, the matrix of intercorrelations found, and the factor weights after rotation have been deposited with the American Documentation Institute. Order Document No. 4462 from American Documentation Institute, 1719 N. St., N.W., Washington, D. C., remitting \$1.25 for 35 mm microfilm, or \$1.25 for 6- by 8-inch photocopies.

²From the Veterans Administration Regional Office, San Francisco, California. This study was done while the author was on the staff of the San Francisco VA Mental Hygiene Clinic. The author, while retaining all responsibility for deficiencies of this study, expresses his appreciation to the Clinic Staff members who participated in this study and especially to Dr. Robert C. Tryon, Psychological Consultant, for his valuable advice and encouragement.

havior or rôles. The characteristics of the persons in each cluster can serve as description of that particular rôle.

B. PROCEDURE

1. *Subjects*

To provide a fairly adequate sample of persons in group therapy, 41 patients attending seven different groups were used. Since these groups were all operating in the same clinic, some selection in terms of the types of patients who come to this clinic and enter group therapy exists. Also, although the different groups are not conducted in exactly the same manner, there is a general tendency to leave the conduct of group meetings entirely in the hands of the patients and to have staff members make only brief psychodynamic interpretations at the end of the sessions, based on the content of the discussion. These factors no doubt may have some effect on the kinds of behavior in groups displayed by this sample of patients.

Only patients who had attended four or more sessions were used in this study so as to allow the therapist an adequate period in which to observe their behavior. Aside from this limitation, an attempt was made to assess all who regularly or irregularly attended the groups.

2. *Behavior Observations*

The basis for determining similarity or dissimilarity among patients was a 100-item check list of "typical" patient behavior in a group. A large pool of statements was obtained by formulating statements that described behavior implied in various group therapy recording and categorization schemes, making up other statements that did not seem included in the above, and adding statements which were intended to reveal how the therapist felt toward the patient being observed. In two trial runs these items were tested for inter-rater reliability. Items that characterized all patients or no patients and thus did not differentiate patients were discarded. Because it was found raters tended naturally to sort the statements in a bimodal distribution around either true or false when several intermediary steps were provided, it was decided to simply ask raters to check the items as true or false.

In all the groups used there were at least two staff members present who could serve as observers of the patients' behavior. This made it possible to have the check list filled out by both therapists, providing a measure of reliability of their observations. Further, a more stable measure of the patients' behavior was made possible by combining their ratings. Inter-rater agree-

ment as measured by tetrachoric r ranged from .98 to .05 with the mean being .64.

C. RESULTS

1. Statistical Treatment

Each patient was given a score on each of the 100 items, this score being the combined rating of two therapists. The score was dichotomous per item, being either "false" when rated so by both therapists, or "true" when rated by one or both therapists. The correlations between the 41 patients were calculated from these 100 scores on each patient resulting in a correlation matrix of 820 tetrachoric r 's. This matrix of correlations was analyzed to determine the presence of any clusters. Two inversely related clusters were easily discernible and any other possible grouping was completely overshadowed by this primary grouping. This finding was corroborated by an inverse centroid factor analysis which yielded a very heavily loaded bi-polar primary factor and only some small loadings for two other factors. The statistical significance of these two additional factors is somewhat questionable.

2. Factor Description

For purpose of obtaining a description of Factor I, each item marked "true" by a patient was assigned that patient's Factor I loading. From items whose total sum of patient's loadings on I was extreme, a description of the factor is made possible. In a similar fashion, items with extreme scores on Factors II and III lead to descriptions of these factors. Since Factor I is bi-polar, there are statements to describe both the high and low extremes of this dimension. The other two factors had few or no significant negative loadings indicating the behavior they reflect was present in all patients but varied in degree.

a. Factor I.

(1). *Highs*. Says things and brings up topics that start group off on lively discussions.

Clarifies the group's activity or feelings.

Likes to act and talk in a rather masculine and aggressive manner.

Expresses hostility or anger towards someone present in a fairly overt manner.

Does dominate others in the group.

Brings unconscious feelings of the group closer to awareness.

Frequently projects the blame for his troubles onto others.

Feels called upon to assume a leadership rôle in the group.

Releases a lot of pent-up emotions in group.

(2). *Lows*. Will enter the discussion usually only if it is about fairly unemotional and impersonal matters.

Steadily attends group but rarely says anything.

Fidgets and seems uneasy in the group situation.

Goes to sleep during group meetings.

Considers himself completely at the mercy and direction of others in the group.

Only rarely speaks up to defend some point.

Tends to disagree by withdrawing.

May be in agreement with another present but does not express this agreement.

b. Factor II.

(1). *Highs*. Seems sincerely interested in gaining real insights about himself.

Is the sort of person one would not mind knowing socially.

States occasionally how his feelings or behavior in the group may be due to or related to past experience.

Shows definite and appreciable signs of improved adjustment since coming to this group.

Tends to accept and appreciate information and reality interpretation from other patients.

Seems clearly above average in intelligence.

Wonders about and tries to determine his own value or importance.

Talks and acts in rather likeable manner.

Supports staff leaders in group.

Wants to get backing of the group to aid him in doing what he feels he should do.

From time to time gains insight into the meaning and causation of his behavior as reflected in what he says and does in the group.

Presence of the group and knowledge of its purposes aids him in controlling his impulses and feelings.

c. Factor III.

(1). *Highs*. Very sensitive and can easily have his feelings hurt.

Desires to know if others have experienced feelings or done things he has.

Consciously feels friendly and supportive towards someone present but does not openly express such feeling.

Reacts to the therapist in a rather dependent and submissive manner.

Captures the group's attention when he speaks.

His manner of discussing problems indicates he has the ability to gain useful insights.

Wonders and tries to determine his own value or importance.

Will openly express his agreement with what someone says.

Talks and acts in a rather likeable manner.

Tries hard to insure staff members will accept him.

Presence of the group and knowledge of its purposes aids him in controlling his impulses and feelings.

D. DISCUSSION

The nature of Factor I is quite obvious and seems to be a grouping of the patients according to how active and dominant a rôle they take in the group therapy sessions. Factor II seems to be a measure of the degree to which certain patients approach the ideal conception of what a patient should do to benefit from therapy and be a satisfying person to work with therapeutically. Factor III, although in many respects related to Factor II, seems to be indicative of a much more sensitive, dependent, perhaps less predictable patient.

Returning to the problem of rôles patients may take in therapy groups, these findings seem to indicate that, as far as this group of observers could discern and report through their ratings of 100 behavior items, there is chiefly one variable by which they tend to classify patients: namely, how active and dominant they are. Beyond this primary index of a patient's behavior in groups there are some indications that his behavior, whether active or inactive, may also be colored by the degree to which it approaches "ideal patient" behavior or by the degree of sensitivity to others and oneself. Because different individuals received different patterns of factor loadings on the three factors, it was possible to categorize the patients into several loadings. There were four groups of more or less pure types who had extreme loadings on one factor and insignificant loadings on the others; i.e., high on I, low on I, high on II, high on III. Then there were several mixed types, the more frequently occurring ones being persons with loadings high on Factors I and II, high on Factors I and III, low on Factor I and high on Factor III, and high on Factors II and III. All possible combinations of factor loadings were represented by some patients but the ones listed were the more frequent and clear-cut patterns. These patterns could be interpreted as rôles which can be described by referring back to the statements listed under

the different factors. For example, persons low on Factor I and high on Factor III could be described as inactive, submissive, shy, sensitive, interested, covertly friendly, and dependent, while those high on Factors I and II could be described as having initiative, likeable, able to gain insights and express feelings and help others to do so too, aggressive, intelligent, active in leading and taking advantage of the group therapy situation.

From the point of view of the definition of "rôle" used in this study, it has been clearly demonstrated that different behavioral rôles do exist in therapy groups. Because of the greater ease in conceptualizing a particular *type* of rôle, several types composed of different patterns of factor loadings were presented above, however, it should be made clear that the patients did not all fall clearly into a particular type, instead there was a blending and merging of one patient's pattern of factor loadings with the others. This point is made as a precaution against taking these results as indicating that patients will play only certain specified *types* of rôles. A more accurate impression would be that (a) patients play different rôles in therapy groups, and (b) differences between any two or more rôles can be accounted for by varying degrees of presence or absence of behavior related to each of the three factors found in this study.

It should be pointed out that these findings deal only with rôles defined as certain types or dimensions of observable behavior in therapy groups. Rôle, of course, can also be defined as qualities one may privately attach or feel toward a particular person or as the qualities or attitudes a person conceives others hold toward him. Such qualities or feelings are often expectancies of likely behavior yet the behavior need never or rarely occur for there to remain a strong expectancy of certain action or conception of a specific rôle. This study has attempted only to deal with a sample of behavior in therapy groups observed by somewhat less involved staff members and consequently does not take into account the other aspects of the rather broad concept of "rôle." For a thorough and recent review of rôle theory the reader should consult Sarbin (1).

Some caution should be exercised in generalizing from these results to other group situations. The selection factors already mentioned in other aspects of this study should be kept in mind. A possible reason why such an overwhelming primary factor that appears determined by patients' activity level, dominance, and aggressiveness was obtained may have been in part the result of increased attention to such behavior on the part of staff observers due to preoccupation with the identification and studying of patient leaders in the therapy groups at this clinic (2).

Also, each behavior item contained a verb in one form or another and, according to Sarbin,³ statements containing verb forms checked true or false are less likely to differentiate types of behavior and are more likely to indicate whether any behavior at all occurred.

E. SUMMARY

The behavior of 41 patients in seven therapy groups was assessed by means of a checksheet which was then used to determine likeness or difference among all the patients and these results studied by means of an inverse factor analysis. Three factors were extracted. The greatest amount of variation among patients was accounted for by a bi-polar factor of activity level, aggressiveness, and dominance. The remaining two factors are somewhat related and of questionable reliability and seemed to be involved with sensitivity and tendency towards being an "ideal patient." These results seem to indicate that patients in therapy groups may well manifest different rôles which vary along the dimensions of the three factors found.

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A "CULTURE AND PERSONALITY" STUDY BASED ON A COMPARISON OF RORSCHACH PERFORMANCE*

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A. INTRODUCTION

This paper compares the Rorschach performance of Yeshivah students with that of College students. A Yeshivah is an institute of Jewish learning and prepares some of its students for the rabbinate. The Yeshivah which was chosen for this study adheres to an extremely Orthodox religious way of life. Law and custom prescribe most of one's life activities. The purpose of a great number of these is to sublimate one's "desires" and to regulate one's relationship with God and Man. Much time is devoted to study and there is a great deal of intellectual competition. Contact with "out groups" (ranging from non-orthodox Jews to non Jews) and their intellectual creations is kept at a minimum.

The purpose of this study is to discover the effects of this "Yeshivah Culture" on the personality development of its students. Subjects were selected on the basis of (a) having been exposed to a Yeshivah education from their earliest youth, (b) coming from a home where there is a similar culture as in the Yeshivah and (c) having had no secular education or any other extensive cultural experiences outside of the Yeshivah. We compared the performance of this group on a number of projective tests (Rorschach, TAT, Sentence Completion and Figure Drawing Test) with the performance of college students selected from C.C.N.Y. introductory psychology classes. This paper is a part of the larger study and presents the results on the Rorschach.

B. PROCEDURE

Each group consists of 29 8s of similar age (ranging from 17 to 24) and socio-economic background. The test was administered to small groups

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of less than 10 Ss. Standard cards and instructions were employed. The free association period, however, was limited to three minutes and all responses were in writing. A group inquiry was then conducted. The subjects were asked to locate each response on a location blank and to indicate in writing what it was about the blot that made them see that response. After the records were scored by Klopfer's method (3), a Munroe Check List (4) was filled out for each record. In this check list a subject's over-emphasis or under-emphasis on a number of determinants is determined by objective criteria which take into consideration the subject's total record. The subject's relative over-emphasis or under-emphasis is indicated by entering a plus or a minus respectively and the strength of the emphasis by the number of such entries. Finally, all individual check lists were combined into a Munroe Group Check List (4, p. 92) which indicates the number of Yeshivah and College Students (*a*) who over-emphasized a determinant, (*b*) who under-emphasized a determinant, and (*c*) who gave normal emphasis. For most determinants the significance of the difference between the two groups was determined by means of Chi-square. Four determinants, however, yielded cells with expected frequencies of less than five which is the commonly accepted minimum for the legitimate use of Chi-square (2, p. 85). Therefore, in the case of two determinants which have only one degree of freedom associated with them, a determination was made of their exact probability by means of Fisher's "direct" method (2, p. 84). But following Cochran (1) Chi-square was used for the remaining two determinants, because (*a*) they had more than one degree of freedom and (*b*) the expected frequency is less than five in only one cell. Moreover, when the expected frequencies were raised by means of combining cells (6, p. 107), similar probabilities were obtained.

C. RESULTS

Table 1 indicates that there is no significant difference between the two groups in respect to productivity. Table 2 indicates that the most striking difference between the two groups occurs with reference to $F\%$, Total Movement, F_c , and C' on which they differ beyond the .001 level of confidence. The Yeshivah Group percepts are excessively determined by pure

TABLE 1
MEAN NUMBER OF RESPONSES OF YESHIVAH AND COLLEGE GROUPS

Group	Mean	Standard deviation	<i>t</i>	Probability
Yeshivah	24.24	10.07	1.17	>.10
College	21.72	6.96		

TABLE 2
GROUP CHECK LIST FOR YESHIVAH AND COLLEGE GROUPS AND CHI-SQUARE VALUES OF ENTRIES

Determinant	Over-emphasis		Under-emphasis		Normal emphasis		Chi-square	Degree of freedom	Probability
	Yeshivah students	College students	Yeshivah students	College students	Yeshivah students	College students			
W	3	15	11	2	18	12	13.64	2	<.01
Dd, d	4	9			25	20	.15	1	.70
S	5	8			24	21	.91	1	>.30
P. Com.	0	1	10	4	19	24	4.40	2	>.20
At. Sex	11	6			18	23	1.33	1	>.20
Range			10	7	19	22	.75	1	>.30
F%	25	8			4	21	18.00	1	<.001
Shading Shock	15	20			14	9	1.80	1	>.10
Fc			18	2	11	27	19.54	1	<.001
C'	0	7			29	22		1	>.001*
K, k	2	7			27	22		1	>.001*
M			20	2	9	27	12.48	1	.08*
FM, FM:M	2	6	20	9	7	14	8.48	2	>.02
m	5	9			24	20	1.51	1	>.20
Total movement	3	17	9	1	17	11	17.36	2	<.001
Color shock	14	23			15	6	6.05	1	<.02
FC			18	10	11	19	4.42	1	>.02
CF, CF:FC	5	2	13	8	11	19	4.76	2	>.05
Total color	1	5	16	9	12	15	4.56	2	>.10
Color movement	9	6	14	15	6	8	1.04	2	>.50

*Exact probability as determined by the method proposed by Fisher and Yates.

form. Whereas in the College Group there is an over-emphasis on movement responses, there is an under-emphasis on such responses in the Yeshivah Group. There is an over-emphasis on C' in the College Group and an under-emphasis on Fc in the Yeshivah Group. The two groups differ at the .01 or .02 level of confidence in respect to M , FM , $FM:M$, W , and Color Shock. In the Yeshivah Group there is an under-emphasis on M and FM ; and, whereas the College Group over-emphasizes W , the Yeshivah Group under-emphasizes it. Also, more individuals in the College Group evidenced Color Shock.

D. DISCUSSION

The over-emphasis on $F\%$ in the Yeshivah Group suggests constriction, defensiveness, rigidity, and a lack of spontaneity in their responses to their environment. The under-emphasis on M and FM suggests a derth of inner imaginative life, both mature as well as immature phantasies. Both characteristics, lack of spontaneity and lack of inner imaginative life are consistent with each other and might very well be a result of having all life activities prescribed for them with no toleration of deviation. The College Group, though it does not lack inner imaginative life, does show excessive immature and tension producing phantasies (FM , m). The overemphasis on C' suggests the presence of anxiety. This comparatively richer phantasy life, as well as increased tension and anxiety, may be a result of having to make vital decisions on the basis of their own past experiences, which, on the one hand, contributes to an internalization of experience (thinking over etc.) but on the other hand, also produces insecurity, tension, and anxiety. The comparative lack of predetermined definite responses for the College Group might also be the cause for their greater tendency to be disturbed and disrupted by emotion arousing stimuli (more Color Shock).

The under-emphasis on Fc in the Yeshivah Group suggests a relative lack of sensitivity and adaptation in the area of social contact (5, pp. 94-97). Plain lack of social contacts, especially with members of the opposite sex, might very well account for it.

Finally, we have to account for the over-emphasis on W in the College Group and the under-emphasis of the same in the Yeshivah Group. It is unlikely that the under-emphasis on W indicates a lack of the usual capacity for abstraction and intellectual organization. Table 3 indicates that the Yeshivah Group perceived significantly more Originals than the College Group. It is quite possible that the excess intellectual energy which is spent on the perception of Originals is the cause of the under-emphasis on W . Actually in the "Yeshivah Culture" there is a premium on intellec-

tual originality as long as it remains within the accepted ideological framework. Moreover, analysis rather than synthesis is their primary logical tool which might possibly be the cause for their under-emphasis on *W*. The over-emphasis on *W* in the College Group possibly indicates relatively more "overstriving," which again might be a result of having to rely on their own resources in order to find their "place" in society.

TABLE 3
MEAN NUMBER OF ORIGINALS IN YESHIVAH AND COLLEGE GROUPS

Group	Subjects*	Mean	<i>t</i>	Probability
Yeshivah	22	4.36		
College	22	2.32	3.11	<.01

*Productivity was controlled by matching each *S* of the College Group with one of the Yeshivah Group who had an equal or lesser number of responses. As a result of this procedure, only 7 *S*s were lost. The *t* test for correlated Means was used.

This discussion suggests that a very basic cultural difference between the two groups, much more extensive and rigidly predetermined behavior patterns in the "Yeshivah Culture," possibly accounts for the personality differences that were found.

E. SUMMARY

A group of 29 Yeshivah Students and 29 College Students were compared in terms of their performance on a Group Rorschach.

The two groups differed significantly in the following entries of the Munroe Group Check List: *F*%, ΣM , *F*_c, *C'*, *M*, *FM*, *FM:M*, Color Shock, and *W*. These differences were interpreted in terms of the personality factors to which these determinants refer.

It was suggested that the personality differences between the two groups might be due to a basic cultural difference between these two groups.

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THE NON-PROJECTIVE ASPECTS OF THE RORSCHACH EXPERIMENT: I. INTRODUCTION*¹

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A. INTRODUCTION

Looking for non-projective elements in a projective technique may appear to some as a search for the proverbial "needle in haystack." Nevertheless, the frequency with which so-called "popular" responses occur in Rorschach protocols, the ease with which responses can be altered by the elimination of parts of the stimulus, change of mental set, introduction of stress, etc., indicates that the search is not a vain one. At least some responses are largely dependent on the stimulus, the set, the surrounding circumstances, and are not a reflection of idiographic personality characteristics. The purpose of this symposium is to delineate the sources of these over-determined types of responses and to distinguish them from those sources which allegedly reflect personality, i.e., projective factors. This is not an easy task, and at least one of the contributors to this symposium, Dr. Hanfmann, doubts its feasibility. Nevertheless, the fact that she participated in this symposium indicates that she at least regarded the problem worth tackling.

The contributors to this symposium have interpreted their task in a variety of ways, but throughout their interpretations there runs a common core, a search for those elements in the complex matrix of antecedent stimulation to each Rorschach response which may influence the response, regardless of the personality of the observer.

Werner and Wapner indicate that the response elicited by the Rorschach technique can have a wide variety of equivalent antecedent stimuli ranging all the way from the stimulus properties of the blots to organismic variables. In fact, to them perception is a multidimensional response organismically determined by the multitude of stimuli impinging on the individual externally as well as internally. They eliminate the projective vs. non-projective controversy by postulating that all perception is based on sensory-tonic stimulation.

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Siipola on the other hand refuses to accept the current dogma that perception is the basis for explaining Rorschach responses and instead provides the hypothesis that the task attitude chosen for dealing with the Rorschach stimulus is the most important aspect of Rorschach performance. She provides several experiments in which manipulation of task-attitude produces different types of responses which would, if they came spontaneously, yield different clinical personality interpretations. From this the conclusion is drawn that the Rorschach responses can yield clues to the type of self-imposed attitude which characterizes a given individual, and that is as far as Rorschach personality evaluation can go.

Gibson regards the Rorschach response not as a perceptual process but as a reaction to pictures of low fidelity. Whatever diagnostic value the Rorschach response may have, he thinks, inheres not in its perceptual basis, but in the fact that interpretations of pictures of low fidelity may provide diagnostic clues.

Singer analyzes the antecedent stimulation into blot-stimulus effects, task-effects, and long term personality characteristics. His is a workmanlike analysis of a practical sort which has much to recommend it for clinical thinking. In general, the symposium contributors concentrate on a search for the stimulus behind the response which is, of course, the problem in all behavior—how to unravel from the complex of antecedent stimulation, the variables relevant to the behavior under observation. Hanfmann finds it in personality dynamics, Siipola in selective task orientation, Werner and Wapner in organismic variables, Gibson in attitudes accompanying pictures of low fidelity, Singer in a combination of all of these. Everyone admits that portions of the complex stimulus, be they attributes of the stimulus itself, or attitudes toward the task or organismic aspects, have either been neglected or overstressed, and call for a redressing of the wrong done to the neglected factors. This is a fortunate situation, since under these circumstances no factor can be neglected and no factor's alleged supremacy will go unchallenged.

B. PROJECTION

Before proceeding with the main argument, it is necessary to attempt an overall definition of the term "projective."

Warren's dictionary² defines projection as "the tendency of ascribing to the external world mental processes which are not recognized as being of

²The other meanings of projection—projection areas (physiology) and projection of blame (paranoia) need not concern us here.

personal origin, as a result of which, the content of these processes is experienced as an outer perception." Accepting this definition, all perception appears to be "projective," since the inner experience of perceiving an object, tasting a substance, feeling a pain, or hearing a sound is probably a subjective correlate of neural impulses occurring in the cortex,³ which are projected to locations where the original source of stimulation is believed to be. How this "projection" develops is still a moot question.

Stern (16), Piaget (12), and more recently Eccles (6) have given much thought to the development of this "projection" in early childhood. It is at least a tenable hypothesis, even though the evidence for it is sparse, that in earliest childhood, the observing child experiences a private non-communicable perceptual world which is a highly individualized interpretation of the specific events in his nervous system, especially his brain. The diverse patterned sensory inputs are finally conventionalized through observation, communication, and perhaps inherent maturation so that they become a part of the micro-structure of the cerebral cortex. The perceptual world of each observer may be regarded, following Eccles (6), as a kind of map developed from the experienced spatial relations between objects of the external world and the inner neural and cortical experiences. Gradually this map gets filled in—the subjective experiences begin to correspond more and more to the externally conventionalized objects and events. Secondary qualities of a symbolic sort are also attached to these spatial localizations, as is customary in conventional maps with their symbols for rivers, mountains, railways, and towns. Thus, colors, sounds, smells, although they belong to the private world of the observer, and are merely symbolic of events in the physical world which they do not resemble in the least, finally become attributed to the public world and can be subjected to such rigorous testing as psychophysical experimentation (6).

This idiosyncratic personal perceptual world somehow or other is brought into correspondence with the personal perceptual world of others so that eventually the existence of a physical world common to the personal individual worlds is agreed upon. Personal experience from earliest childhood and communication with other observers are the standard procedures by which we learn to interpret a part (and only a part) of our private per-

³Adrian (1) has pointed out that the usual sequence of events in perception is that some stimulus to a receptor organ causes the discharge of impulses along afferent nerve-fibers which via synaptic relays evoke a specific spatio-temporal pattern of impulses in the cerebral cortex. This specific spatio-temporal pattern gives rise to the experience of a sensation (or when more complex, of a perception) which is "projected" (believed to occur) somewhere outside of the cortex, i.e., the surface of the skin, within the body, or at a distance from the body.

ceptual world as events in a single physical world common to other observers. In this way, the private and public worlds overlap and this common overlap is called the physical or real world. Just how far the personal world corresponds with the "common" world of reality varies from person to person. Colors, tones, warmth seem to be more amenable to conventionalization than other experiences.

The residual non-public world remains an idiosyncratic world which only the individual himself had access to until the projectivists came on the scene and claimed that they could provide the key for unlocking the private chambers of our inner world and open them to public scrutiny. Thus, in essence, the "projection" in projective techniques differs from the "projection" that takes place in ordinary perception, not in kind, but in the type of material which it aims to unfold. In a sense, the projective techniques attempt to "project" the material which in ordinary life experience never becomes projected externally, and remains enclosed in the personal life of the individual. Just how projective techniques attain this end is not demonstrated, and whether they accomplish this end is debatable. To reduce the problem to experimental investigation, a modification of the assertions of the out-and-out projectivists has to be undertaken. Instead of being concerned with the inner sanctum of personal experience which is by definition incommunicable, we can limit ourselves to the deviations from the expected in that part of the personal world which is communicable (projected), or to the type of unique (deviant) perceptual response pattern which characterizes the individual. In other words, we shall concern ourselves with the elements common to most personal worlds, but pay special attention to the deviations from the commonly expected responses. Projective technique, therefore, may be regarded as an attempt to study the personal deviations from the patterns of response that emerge as common elements in most people's personal worlds. Whether the still "unprojected" parts of the private world are the causal agents in the observed deviations remains an unsolved problem.

C. RORSCHACH'S EXPERIMENT

When one views the Rorschach technique as an experiment, as Hermann Rorschach in fact did, it becomes important to determine the correspondence between the components of the ink-blot experiment and those of the usual laboratory experiment. Ordinarily an experiment requires the presence of an experimenter, a subject, a hypothesis to be tested, a task to give the subject, apparatus with which to present the task, and stimuli to which the subject is to make a response. The subject has to accept the task and to

make a response; this response has to be recorded and then evaluated in order to test the tenability of the hypothesis.

In the Rorschach experiment, the experimenter and subject need not detain us long, but the matter of the hypothesis raises an important question. To the best of the writer's knowledge, Rorschach never stated his hypothesis explicitly. If one were to infer a hypothesis from his writings it would be something like this: man perceives in Rorschach space in the same way that he perceives in real space, and the way he perceives in real space is dependent on his personality—hence, the way he perceives in Rorschach space is dependent on personality. Let us assume that this is the basic hypothesis which Rorschach was testing.

The apparatus and stimuli which Rorschach used have been described as "accidental forms, that is, of non-specific forms" (13). They were selected from a large number of such accidental forms produced in inkblots, on the basis of the following criteria: (*a*) simplicity, (*b*) suggestion of meaningful content, and (*c*) symmetry. They contain a variety of colors, intervening white spaces, graduations of shading and contours. The term "accidental" is a good description of how the inkblots were made but not of the end result, since the frequency of popular responses belies their accidental nature. Nevertheless, it is fair to say that the Rorschach cards present at least some ambiguous elements which can be interpreted in a variety of ways. The stimuli themselves have never been described in terms of the usual visual-perceptual parameters, though such description, difficult as it may be, is not impossible. The task itself—to answer the question "What might this be?"—is simple enough for almost anyone to grasp. The acceptance of such a task is, however, not universal, since it may be construed in different ways and some people may refuse to play such a game for a variety of reasons ranging from "defense mechanism" to simple adult refusal to play a childish game. Since no direct attempt is made during the experiment to determine the type of acceptance which characterized a given subject, this factor may introduce variations in response of its own accord.

The response by the subject is rarely if ever determined by the stimulus properties alone. The factors involved in the determination of the response will be examined more fully. Meantime, it is sufficient to indicate that some responses reflect more heavily the stimulus properties; others reflect these to a lesser degree, and the latter are more often than not called "projective."

D. MODEL FOR THE RORSCHACH TECHNIQUE

Before discussing the evaluation of the response and the testing of the hypothesis, it is necessary to construct some model for the concepts we are dealing with. The hypothesis that perception in Rorschach space depends upon personality may be tested by the following mathematical model.⁴ Let us assume that we can write down the equation for the response R , as dependent upon a series of parameters, X_1, X_2, X_3

$$R = f(X_1, X_2, X_3, X_4, \dots, X_n)$$

so that if we could measure each of these parameters, and knew the function, f , we could predict the response R .

What are these parameters? Classical psychological theory has divided them into two parts: structural and functional. By structural (or autochthonous to use the Gestalt term) is meant the parameters deriving solely from the nature of the physical stimuli and the neural effects they evoke in the nervous system of the individual (10). Presumably, all whose visual systems are intact and "normal" would tend to respond in the same way or closely similar ways if structural parameters were the sole determinants of response. By functional parameters is meant the needs, moods, past experience, and memory of the individual (10). Presumably, the functional factors are so highly varied that even when the structural parameters of the stimulus are identical for two individuals, the response will differ because of the functional parameters. But functional parameters are not to be equated with projective, since at least some of the functional factors are as regular in their influence on the response as the structural factors discussed previously. Projective techniques claim that they reflect the internal organization of the single individual—his individual personality. If it can be demonstrated that a variety of individuals of differing personalities will vary in the same way (emit the same response) when motivation or fatigue is varied, such responses no longer satisfy the criterion of projective. It is proposed, therefore, that when systematic variations in a given parameter will produce equivalent or similar alterations in response, there is no need to term such responses "projective." This is the definition of non-projective which we shall adopt for the purposes of this discussion.

It becomes necessary to catalogue the variety of parameters including the projective which influence the response. Some of these parameters can be specified readily. Let $S = (X_a, X_b, \dots, X_n)$ represent the stimulus prop-

⁴Compare Graham (7).

erties of the card, say, the colors, gradients of shading, white spaces, etc. Let $T = (X_1 \dots X_n)$ represent the temporal factors involved, duration of exposure; let $O = (X_1 \dots X_n)$ represent the state of the organism, degree of fatigue, satiation, readiness to respond, age, sex, motivation, set, etc.; let $E = (X_m \dots X_p)$ represent the previous history and experience of the individual with similar stimuli; let $C = (X_q \dots X_t)$ represent the special abilities and disabilities which characterize the individual in relation to performance on such tasks—completion tendency, shift ability, intelligence, personal values, capacity for free association, organismic factors (tensions, skeletal excitations, etc.) and special characteristics due to psychopathology. Let $P = (X_1 \dots X_z)$ represent a series of unknown parameters to be utilized if and when the response is not determined by the variables $X_a \dots X_t$ which are presumably measurable and determined. Then, to test Rorschach's hypothesis, we would have to determine whether in the equation $R = f(S, T, O, E, C, P)$, the variable $X_a \dots X_t$, or the portion of the equation $f(S, T, O, E, C)$ is sufficient to predict the response, R . If they are sufficient, then there is no need for the additional variables, P . If, however, the response is not determined by the first list of parameters, we may have to call on additional variables presumably of the projective variety or of personality to explain the residual unexplained variance. This is the mathematical model which we propose. It is clear that for some types of stimuli, R , is well determined by the measurable parameters $X_a \dots X_t$. These are the overdetermined unambiguous stimuli. For ambiguous stimuli we may perhaps need additional parameters. We, however, must realize that we have not yet succeeded in measuring even the parameters $X_a \dots X_t$ which we consider to be the basic determinants of visual perception. We do not know the parameters involved in the perception of real space, nor of Rorschach space, and one wonders whether we can ever test Rorschach's hypothesis before $X_a \dots X_t$ are measured accurately.

This is the argument that the experimental psychologists present. On the other side, however, the personologists maintain that in amorphous stimuli, the first part of the equation is negligible and $R = f(P)$ represents a better model to work from. The choice between these two models probably is dictated by the "personality" of the experimenter. Some find it easier to deal with the "experimental" variables, others with the "personality" variables. From the point of view of the writer, it seems that science is likely to make more progress in uncovering the experimental variables first, even if "personality" itself does not stand to benefit immediately from such investigation.

Perhaps a less abstruse, concrete model may serve to illustrate the problem more directly. Let us consider as our model the one proposed for investigating information theory or communication theory.⁵ The elements of such models are (*a*) the input or message, (*b*) the filter to remove the extraneous noise, and (*c*) the output or received signal or message. The usual problem of communication theory is to devise a filter which will reduce the noise or distortion to a minimum and permit the message to be received as clearly as possible. If the ink-blot corresponds to the input, the patient corresponds to the filter, and the patient's response to the output, the problem of personality research becomes one of probing the filter with a variety of stimuli to determine the filter characteristics. Instead of minimizing the rôle of the filter and designing it so as to provide the minimum interference with transmission, as is done in communication theory, our problem becomes one of maximizing the rôle of the filter and its influence on the message so as to learn the filter's characteristics. Instead of minimizing "noise" we wish to maximize it, instead of avoiding distortions, we wish to elicit all the natural rhythms, selectivity, amplifications and reverberations of the filter so that we can describe its true nature.

Let us examine the Rorschach experiment from the point of view of the proposed model.

The input or ink-blot may be characterized by its elementary stimulus properties and by its Gestalt structuring. There are two ways of studying the elementary stimulus properties of the ink-blot: (*a*) by reduction screen methods, and (*b*) by altering the stimulus properties to see what effect it produces on the response. The reduction screen method has never been applied except in a tentative way (17). Applying some of Gibson's (8) hypotheses to the perception of ink-blot, we find that the visual field (in contrast to the visual world reflected in the response) presented by the ink-blot consists of (*a*) color patches, bright hues varying from black through gray to white, determined largely by the wave-lengths of the luminous flux reflected from the card, (*b*) the brightness or intensity dependent on the amount of luminous flux reflected from the stimulus area and (*c*) distribution of color and intensity ranging from homogeneous stimulus areas to those showing considerable heterogeneity (*chiaroscuro*) including gradual abrupt and irregular gradients of brightness, color, and saturation. The gestalt structuring or organization of these elementary constituents of the blot, may also be classified according to gradients, following Gibson, but in their case, they would be gradients of size and direction, wedges or similar direc-

⁵Suggested by Dr. E. I. Burdock.

tional or structural elements, leading to the perception of balance, symmetry, good form, and movement.

If we are ever to evaluate the underlying components of the Rorschach, a careful measurement and description of these physical and gestalt properties of the ink-blot would be necessary. Some progress has already been made in describing the physical and gestalt properties of the blot (17, 9). More progress has been made with studying the importance of the physical properties of the blots by varying them experimentally. Thus, the importance of color, shading (*chiaroscuro*), presence of major details, have been studied by Baughman (+) and the influence of alterations in these properties has been determined. This is a very promising approach, but more research has to be done in this area to establish the importance of various parameters.

The filter, itself, the patient in our case, has to be studied from at least two points of view: (*a*) the selective properties of the filter and (*b*) its general capacities. The selective properties are reflected by its general receptivity to stimulation, its tendency to accept or reject tasks, and its systematic preferences reflecting certain personal value systems, or certain preferred perceptual responses. These may or may not be related to personality. Thus the tendency of some persons to gravitate to wholes or details, to colored or shaded portions, to white space, to gradual gradients (distance or vista effects) or to abrupt gradients (contours or forms) may be characteristic of the individual but may be as specific as his hair color or his finger prints, which thus far, at least, have not been claimed to reflect personality. Whether personal value, such as the preference for human content as opposed to animal content in his responses, reflects personality, is, of course, a moot question. The capacities of the filter that concern us are: (*a*) capacity for free association, (*b*) completion tendency, (*c*) shift ability, (*d*) intelligence. Insofar as these capacities determine the response, a knowledge of the filter's characteristics with reference to these areas would be important. But these capacities can be measured directly, and need not be left to inference from Rorschach performance. Another source of information about the filter is the state of organismic tension he is undergoing and the state of mental "tension" he is subjected to. It is well known that in addition to the elementary and gestalt stimulation impinging on the retina and relayed to the cortex, there are other stimuli reaching the cortex simultaneously which may condition the response. Tensions arising from skeletal muscles will determine the degree to which distortions will occur in the perception of the vertical. Anxiety and other psychopathological stimulation will distort thought processes and thus interfere with the emergence of the percept.

These may be some of the underlying factors of personality but, if they are, they can be studied more directly than through the Rorschach technique.

The output or response may be distorted either because the percept was never completely formed, or, because after it was formed certain processes interfered with its emergence. The lack of readiness to respond may interfere not with perception but with the emergence of the verbal response reporting the percept. Incongruity in certain elements of the stimulus field may interfere not with the formation but with the expression of the response. Organismic factors, psychopathological trends, may also affect the emergence rather than the occurrence of the percept. Among the psychopathological trends that may affect the response are: (*a*) poverty of ideas, (*b*) perseveration, (*c*) confused or bizarre thinking, (*d*) confabulation, filling in of a gap in memory or perception by imagined episodes or events, (*e*) contamination (telescoping of two ideas into one and thus producing a bizarre result), (*f*) preoccupation with the irrelevant or rare, (*g*) obsessive thinking, (*h*) delusions, (*i*) vague ideas, (*j*) feelings of disintegration or cosmic calamity, (*k*) ideas of reference, negativism, etc.

From the point of view of this model, one wonders whether the time is ripe for this type of experiment. Since there are so many unknown parameters, it might be well to bend our efforts toward measuring these, before integrating them into such a complex model. When we have measured the specified parameters, we might then introduce the complex model to determine the interactions that occur between the many parameters. Perhaps personality is nothing more than this interaction which expresses itself in selectivity of stimuli and integration of capacities and the other factors inherent in the perceptual process. Meantime, however, we must bide our time and turn elsewhere for a scientific evaluation of present day Rorschach protocols. Before suggesting a more appropriate model, let us summarize the successes and failures that the Rorschach technique has achieved thus far. They have been presented at length elsewhere (18) and will be simply listed here.

E. EVALUATION OF THE SUCCESS OF THE RORSCHACH

The Rorschach workers have failed to provide an objective scoring system, they have failed to provide a good measure of reliability of the test-retest, or comparable form, variety. The blind analysis technique which has been heralded as a basic approach to the validation of the Rorschach interpretation has yielded one-sided reports only. We hear of the successes, but the failures, of which there are presumably some, go unrecorded. The

matching techniques usually indicate that the results are better than chance, but that is hardly a measure of validity except in a crude sort of way.

The statistical studies of the Rorschach technique indicate that when a Rorschach worker summarizes his year's work and compares it with the personality evaluations or diagnoses made by the clinical psychiatrist on the same patients, he usually finds a rather high degree of agreement, depending upon the degree to which the two clinicians have learned to communicate to each other what they mean by the various terms in their professional vocabulary. Often, such reports come from institutions in which the patient intake is limited to a narrow choice of diagnostic categories, permitting chance factors to favor the outcome.

When the individual Rorschach factors are compared in contrasted groups or in contrasted subgroups of the normal population, few if any consistent differences emerge except in such gross factors as number of responses when comparing organics and normals. However, when these scores are submitted to a factor analysis significant differences emerge in the factor scores.

When the Rorschach protocols are analyzed for their contents in terms of content-analysis scales of the variety used in analyzing interview material, significant relationships emerge with personality ratings. Similarly, when these scales are submitted to a factor analysis, the significant relationships persist. What kind of a model can be provided for the Rorschach technique which might possibly explain these findings?

One hypothesis that suggests itself would require a shift of emphasis from the perceptual to the content aspects of the Rorschach. It is true that Rorschach veered away from the content analysis of ink-blot which was so popular with the psychologists of his day and espoused the formal aspects. He states: "The content of the interpretations . . . offers little indication as to the content of the psyche" (13). But he may have been wrong, or, he may have defined content too narrowly. If we define content as the essential elements of the protocols and regard the protocol as one would interview material, and analyze for its contents, the mystery is solved. Once you eliminate the perceptual scoring, and make a content analysis of the verbal production of the subject into such categories as: compulsive thinking, disorganized thinking, or creative thinking; poverty of ideas or fluency; confabulation or clarity; rigidity or flexibility; contamination or its opposite; perplexity or straightforwardness; rejection or compliance, etc., it will be discovered that such characteristics reveal themselves in the Rorschach the way they reveal themselves in the psychiatric interview. To be sure, the

Rorschach interview is a standard interview and may lead to results which the free psychiatric interview cannot lead to. But it is still an interview—an interview under the veil of ink-blots.

This would explain why content is related to personality, whether evaluated globally or in isolated scales, while formal factors fail to relate to personality. This would also explain why factor analysis of both formal as well as content factors relate to personality. In the course of the factor analysis, the content factor affecting the formal scores are teased out, viz., the kind of mental content which serves to reduce R, disorganize F, disembody C or Sh, or prevent good M from arising in the mental patient and, *mutatis mutandis*, the kind of mental content which increases productivity and good responses in the normal, reveal themselves in the rotated factors. If this hypothesis be true, we should turn away from the indirect expression of mental content through determinants and location, and begin building scales for analyzing the content of the verbal productions directly. Such a beginning has been made by several workers and if we spent but 10 per cent of the harnessed energy behind the spinning Rorschach wheel to studying the interview basis of the Rorschach, we may bring nearer the day when the contradictions that now exist within the Rorschach field will be resolved.

New developments in the interview itself are fast turning it into a scientific tool, and since the interview in the last analysis is the basis for personality evaluation, no test today can rise above it. If we obtain objective criteria via the interview for the classification and evaluation of personality, perhaps such criteria may serve as a basis for the validation of tests. But without an anchored interview, we float aimlessly in the sea of personality without compass or rudder.

F. SUMMARY

In order to test Rorschach's hypothesis that perception in Rorschach space is related to personality, a functional relationship between the response, R , and the various parameters that may influence this response was developed:

$R = f(\overline{S, T, O, E, C, P})$, where the bracketed parameters refer to the objectively recognizable factors which can be manipulated or controlled experimentally, while P refers to personality factors which may influence the response over and above the influences attributable to the first set of five factors. Since we have not yet been able to measure the first five parameters, the hypothesis attributed to Rorschach cannot yet be tested. A concrete model which may be helpful in the conceptualization of such measurement is provided by the Information Theory Model in which the input is made

to correspond with the *stimulus card*, the *filter* with the *subject* to whom the Rorschach technique has been applied, and the output with the *response*. The problem of this model is to determine the characteristics of the filter (subject) by noting the noises and distortions he produces in his responses.

This model too is not yet suitable for experimental testing of the Rorschach hypothesis because of our ignorance of the basic parameters of perception. As a tentative model for the evaluation of the Rorschach technique, the interview technique has been proposed. The application of the content analysis method to Rorschach protocols has indicated that such methods are suitable for eliciting dimensions that reflect personality ratings obtained from other sources. By regarding the Rorschach technique as a systematic interview behind the veil of ink-blot, we can bridge the gap that now exists between global Rorschach evaluations and other types of personality measures. This approach removed the projective aspects of the Rorschach completely, by eliminating the perceptual factors on which Rorschach based his theory. Until we find ways of determining how perception takes place, we have no choice but to minimize the perceptual approach at this time.

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THE NON-PROJECTIVE ASPECTS OF THE RORSCHACH EXPERIMENT: II. ORGANISMIC THEORY AND PERCEPTUAL RESPONSE*¹

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The present symposium is concerned with so-called "non-projective" aspects of the Rorschach test. The term non-projective is meaningful to most of us and has its legitimate use insofar as the dominant viewpoint in present-day psychology makes a distinction between two aspects of perception, non-projective and projective. Stated in other terms most psychologists subscribe to a dichotomy between perception as a formal general function and perception as the mirror of personality. We should like to say at the outset, however, that in our opinion the conception of such a dichotomy is not an altogether fortunate one and has, as we see it, contributed to the cleavage still existing between general theoretical psychology and clinical psychology.

The cause of this cleavage is probably more a fault of general psychology than that of clinical psychology. General psychology of perception has, for the most part, failed to take into account the projective aspects into its theoretical considerations. It does not seem possible to bridge the dichotomy between the projective and non-projective aspects of perception if one starts with a non-projective theory of perception first and then superimposes the projective aspects upon it.

To take a concrete example let us suppose that it is true, as Bruner and others have attempted to demonstrate, that the size of a coin is seen as bigger when it is highly valued. How does traditional psychology analyze such a problem? It analyzes it in terms of a duality of factors, in this case sensory or retinal on the one side, and motivational on the other. In such an analysis, it is assumed that there is an interaction between these heterogeneous factors, one an organismic—here motivational—and the other an objective, stimulus or sensory, factor. However, such a statement, that there is interaction, does not solve the problem. Rather, it poses the problem which is at

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the heart of the general nature of perception, including the projective and non-projective aspects.

In order to understand the mechanism of interaction between so-called "subjective" and "objective" factors in terms of general theoretical psychology, one has to abandon the view that such interaction is a special feature of a particular perception called "projective." A general theory has to aim at showing that such interaction is a feature of every perceptual process. In other words every perception, necessarily, is essentially projective in the sense that organismic factors "interact" with sensory factors.

The central theme of a general theory of perception, then, has to be the logical and empirical solution of the problem of interaction, i.e., interaction between apparently heterogenous factors. The logical solution of the problem of interaction seems, to us, clear. Factors which are interacting though appearing to be heterogeneous, have to be shown to be essentially of the same nature; interaction is not possible between factors different in nature.

Any theory, therefore, which attempts to solve the problem of interaction has to abandon the notion that perception is a synthesis of discrete functions as sensory on the one side and organismic on the other.

Just because visual objects send out stimuli which affect our visual apparatus the conclusion is not warranted that the ensuing perceptual process is sensory in nature. We maintain that any stimulation whether it comes through extero-, proprio- or intero-ceptors is essentially organismic in nature. We have postulated such a process as sensory-tonic in nature. Tonus, in traditional terms, refers to somato- as well as viscero-tonic tension.

We have called our theoretical formulation "the sensory-tonic field theory of perception." One of the essential tenets of this theory is that the perceptual process is sensory-tonic in nature. Accordingly, we maintain that the primary entity which underlies visual perception is not a sensory entity but is rather a sensory-tonic entity. The possibility, then, that factors seemingly heterogeneous, such as visual on the one side and motivation on the other, interact, is based on the assumption that both are sensory-tonic in nature.

What we are suggesting then, is that general perceptual theory, from the very beginning on, must assume that any perception is essentially projective. That is, the organismic state has to be considered as an intricate part of perception, whether we deal with Rorschach responses or responses in any non-clinical experimental situation, such as judgments of sizes, form, verticality, etc. In this connection we have shown, for instance, that perception of verticality is affected in a lawful way by changes in the organismic state.

That is, in this area of space perception, usually considered as non-projective, there is again interaction between organismic and visual factors because both are essentially sensory-tonic.

One further point: A general perceptual theory does not only have the task to formulate general laws which underlie the projective nature of perception, it has to go one step further. It has to be able to interpret individual reactivity within the framework of the theory and its postulates.

One of the constructs derived from the general tenets of the sensory-tonic field theory of perception is that there is "functional equivalence" between various factors with respect to a perceptual end-product. We have demonstrated, for instance, that visual perception of the vertical is affected equivalently by such diverse factors as auditory stimulation and direct muscular changes. Such functional equivalence implies that one factor can substitute for the other factor. Such substitute activity leads to the notion of vicariousness, and particularly to what we have called vicarious channelization. This means that available energy may be released through different channels. It is postulated that sensory-tonic processes may come to expression in terms of muscular-tonic activity, viscerotonic activity, perceptual activity, etc. One should, for instance, expect that if one response mode is blocked, activity may be channelized into another response mode.

The generality of this problem becomes evident from the fact that systematic attempts to understand human behavior have utilized notions akin to that of vicarious channelization. Rorschach's interpretation of movement to ink blots is directly related to the present problem. He assumes an antagonistic relationship between motion perception and the subject's general motility.

We may further note that this concept of vicarious channelization is akin to the notion of transformation of energy implicit in psychoanalytic thinking concerning such mechanisms as cathexis, sublimation, etc.

We may now turn to studies which have been undertaken to demonstrate vicarious channelization for an area of particular importance to the Rorschach situation, namely that of movement response.

One of these investigations carried out by A. E. Goldman dealt with the perception of autokinetic motion under conditions of various degrees of body activity. The underlying hypothesis of this experiment was that if sensory-tonic energy is blocked from being released through bodily-motor channels, it should find expression in heightened perceptual motion. Contrariwise, if this energy is released through greater motor activity, the degree of perceptual motion should be reduced. Observations of a fixed pin point of light

in the darkroom were made under three conditions: (a) Immobilization, (b) control, and (c) increased motor activity.

Immobilization was achieved by strapping *S* into a chair for a period of 10 minutes preceding and during the test trials. Under control conditions, the *S* sat at ease, and under conditions of increased activity, the *S* had to move his arms continually while making the observations.

It was found that readiness to perceive motion was greatest under immobilization, less under control, and least under heightened body activity.

Another experiment dealing with vicariousness was carried out by Korchin, Meltzoff, and Singer. Following the same hypothesis, these investigators inhibited motor activity preceding the presentation of a Rorschach card. Under these conditions, the number of movement responses were more numerous than under conditions where motor activity was not inhibited.

Another experiment—conducted by Krus at Clark—shows a similar relationship of vicariousness. Subjects were required to report what they saw when line drawings such as a train, baseball player, etc., were presented tachistoscopically. Before the pictures were exposed, the experimental group had to press vigorously against a push-board. After pushing against the board, the *S* stood still and looked at the exposed picture. The reports of the experimental group were compared with those of a control group which made observations without preceding muscular tension. The number of movement responses reported by the motorically involved group was significantly smaller than that reported by the control group.

Singer, Meltzoff, and Goldman studied the effect of another type of inhibition (holding an awkward posture for five minutes), and hyperactivity (vigorous calisthenics for five minutes) on Rorschach responses. They found support for the hypothesis that there is a vicarious relation between decrease of motor activity and increase of *M* responses.

To summarize, these experiments represent an attempt to demonstrate the general operation of vicarious channelization by inducing organismic conditions which either release or inhibit motor activity and then by observing the effect of these conditions on the perception of motion. Here one can see the tie-up between general theoretical experimental psychology on the one side and the clinical approach on the other. For the purpose of finding general relationships experimental psychology manipulates organismic states in the laboratory, whereas the diagnostician finds these differences in organismic states in nature as rather permanent differences characterizing people.

Thus the expectation is that people who are not hyperactive because of experimental conditions but because of their personality make-up should

show less movement perception compared with hypo-active individuals. A study devoted to this hypothesis has been carried out by Irving Hurwitz at Clark University. He is studying the Rorschach responses of hyperactive and hypoactive children of various age levels. The overall results indicate that 9-, 10-, and 11-year-old children clinically defined as hyperactive have relatively few movement responses compared with children clinically defined as hypoactive. This is true for the *M*, *FM* and *m* responses.

In his study, Hurwitz has introduced another aspect pertinent to perceptual organization, namely that of development. He found that the differences between the groups of hyper- and hypoactive children in terms of vicarious relationships increase with age. Though, at the moment, we are not prepared to give an interpretation of the developmental data pertaining to vicarious operation, these findings point to the necessity of including the developmental point of view within any organismic theory of perception.

Accordingly, we may add a few remarks concerning these developmental factors. A number of studies have been carried out at Clark, Worcester State Hospital, and Cushing with the aim of showing that genetic stages in inkblot perception as observed in children are related to organismic states which occur in pathology, such as schizophrenia. In analyzing children's Rorschach responses, Friedman developed a genetic scoring system where he could particularly differentiate between genetically-high and genetically-low whole, detail responses, etc. Hemmendinger extended this aspect of Friedman's work by a study of children from ages 3 to 11 and adults. Friedman and Siegel, applying these genetic scores to the analysis of the records of schizophrenics, found that the perceptual reactions of hebephrenic-catatonic schizophrenics most nearly resembled those of very young children, the paranoid schizophrenics were next on the genetic scale, and naturally, normal adults responded at the genetically highest level.

A developmental approach of this sort has implicitly the underlying assumption that perceptual reactivity is not developing as a relatively independent function but operates as part and parcel of a genetically changing organismic state. In other words, with changing organismic states perceptual functioning embedded in it changes. Because of this embeddedness of perception in organismic states, the perceptual response can serve as an indicator of organismic levels.

Therefore, it shouldn't be surprising that if one induces experimentally a lower level of functioning of an individual that this should express itself in genetically lower perceptual activity. Such experimental lowering can be achieved by means of tachistoscopically shortening the time of exposure of

perceptual material or by putting an individual in a stressful situation, etc. This expectation has been confirmed in a number of experiments of this kind which have been carried out by Framo, Fried, and Lofchie under the direction of Dr. Leslie Phillips at Worcester State Hospital.

Again, this series of experiments concerning the developmental approach to psychopathology shows clearly the relation between general theoretical and clinical psychology.

To conclude, because of the embeddedness of perception in organismic states, corresponding results are obtainable independent of whether variations in organismic state are studied by experimental manipulation, by observation of a developmental series, or by observation of clinical differences.

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THE NON-PROJECTIVE ASPECTS OF THE RORSCHACH
EXPERIMENT: III. THE POINT OF VIEW OF
THE RESEARCH CLINICIAN*

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I have been asked to represent the point of view of those who work in the clinical field, and are at the same time interested in the methodological problems involved in personality study. My reaction to this symposium is a dual one: I disagree with the conception represented by its title, and I am very happy about the actual studies reported, about the approach they represent. I feel that this is exactly the type of studies that those experimentalists who are well familiar with the field of projective techniques should be doing to help out the clinicians: not in order to prove or disprove the claims of projective techniques—this is a very barren focussing of research—but in order to clarify the complicated net of relationships that is the very essence of each fruitful projective technique.

I feel that it is inadequate or even misleading to talk about the non-projective aspects of projective techniques. The implication seems to be that insofar as the subjects' production is determined in part by the properties of the stimulus and the nature of the situation, this production cannot be utilized for personality diagnosis, as being "non-projective." This assumption is based on the untenable conception of the person and of his world as being two separate entities, instead of two poles of an interactive process. We all agree that a situation that would be completely coercive—that would produce a 100 per cent identical response in all subjects—would not be too promising as a personality test. However, the correlate of this is no less valid: a situation that would be capable of eliciting the total imaginable range of human behavior would be equally useless for personality diagnosis. To approximate this improbable situation, imagine, e.g., that we would show an identical object to subjects from different cultures, and that this object happened to be held sacred in one culture, and despised in the other. In spite of very different responses elicited we would not obtain much information about the personalities of our subjects through this comparison. A certain core of invariance in the psychological object or situation is neces-

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sary if we are to diagnose personality on the basis of the subject's way of dealing with this situation. Perception, with its relative stability and relative stimulus boundedness is one type of organismic process that insures the common features of our worlds: without such common referents our diverse private worlds would be inaccessible to each other.

The Rorschach inkblots also provide us with such common referents, and this was implicitly recognized by Rorschach himself. He did a great deal of informal experimentation with various types of blots, and deliberately included into his final selection both blots that produce a great variety of responses, and some to which subjects tend to respond in a similar way. He has also tried out the effects of some variations of instructions on responses in various categories and found that some of them could be easily increased in number by directions asking for this particular type of response, others not so easily: color responses, e.g., more easily than movement. A systematic investigation of the object-pole of the Rorschach performance would be a continuation of these early beginnings; such studies are a necessary and fruitful complement of the studies of the subject pole, of performance as a function of personality.

What are the conditions that must be fulfilled for these two approaches to be really complementary, rather than entirely unrelated and unhelpful to each other? Werner has pointed out the basic requirement: to be capable of integration both approaches must employ a common system of concepts pertaining to organismic processes. Our current theories of personality are based on wholistic and dynamic concepts: the results of any studies that have been conceived in terms of S-R theories cannot be easily fitted into this framework. One might argue that experimental studies may provide data on correlations between stimuli and performance, without any theoretical elaboration. Such studies however do not meet the needs of the personologists half-way; at best they provide only potentially useful data, only material to be worked on. Yet only too frequently the clinician, in reading such studies, finds to his sorrow that they lack information necessary for utilizing the data: e.g., the easily obtainable information about how the subjects had interpreted to themselves the instructions, how they had viewed their task. I would raise very similar objections against those clinically oriented studies that correlate Rorschach indices with doubtful diagnostic categories, or with extremely general "traits"; they also merely add to our hoard of questionable and undigestible data and fail to increase our understanding of either the Rorschach Test or of personality. What I am calling for are not theories of high order of generality, nor even strictly testable

hypotheses. The concepts and the assumptions adequate for guiding experimental research may be low order ones, of the kind that might be suggested by the empirical data themselves; but they must be of a nature that permits an eventual meeting on some common ground with concepts that are current in personality theories. The studies that have been reported here today provide us with excellent examples of such "congenial" approaches, of experimentation that can be oriented towards personality theory.

While theorizing "in the direction" of personality, we must be cautious not to overstep the limits imposed by the difference of the experimental and the projective approaches. The Rorschach, viewed as a stimulus, is an extremely complex combination of patterns. The experimentalist must attempt to reduce this complexity by isolating in turn various sets of factors. If, in drawing conclusions from his experiments, he should equate the simplified situation with the original one he would be bound to overgeneralize. We can use the results of Siipola's ingenious work on color to illustrate the necessity for qualified generalizations. In her careful experiments Siipola demonstrated the rôle of discrepancy between color and form as a factor in producing the so-called color shock.¹ The experiments isolate this factor quite conclusively, and it is fairly safe to assume that it operates also in the standard Rorschach. On the other hand, it would not be safe to assume that this is an exhaustive explanation of the color phenomena in Rorschach, because some of them appear clearly related to factors that were not duplicated in the experimental set-up: the alternation of black and colored blots, the opportunity for delaying response to color. However, the possibility of overgeneralizing from specific experimental conditions is not a major danger: if it occurs, further experimentation with other combinations of factors can help to correct it, even within the same framework of the stimulus oriented approach.

On the other hand, when the explanations suggested by this approach appear too narrow, too object-bound, as it were, they can be broadened by the injection of more personality oriented concepts, by formulation of possible psychological equivalents of wider scope. To continue with the example of color: some observations made in Rorschach testing suggest that the conflict produced by discrepancy of color and form in looking for a plausible concept may be only a special case of a more general conflict; that of a more passive attitude of contemplation and appreciation which is induced by color, and of the more active and task bound orientation of concept production which demands attention to form. Similarly, the findings

¹This discrepancy exists when the color of the blot is inappropriate to the object that is strongly suggested by the shape of the blot.

reported by Siipola suggest that the subjects who, under free conditions, behave as do those who are actually under pressure of time need not be thought of as specifically speed oriented. The pressure under which they seem to operate may be a counterpressure which they apply in order to hold in check some internal threats; these same threats may cause them to turn their attention away from the actions of human beings and so result in an underproduction of movement responses which Siipola found. I am not proposing this explanation as necessarily valid: I want merely to show that explanations deriving from well observed facts may be confidently expected to fit with our conceptions of personality, to lead over into them in a natural fashion.

A few years ago I read, in manuscript, a study that had been done by a Turkish student in Istanbul under the direction of my German teacher, Professor W. Peters. Peters, who had been quite sceptical of Rorschach, constructed several series of inkblots differing widely in their figural properties. All of these series, and also the original Rorschach one, were administered to the same large group of subjects. The purpose was to test the assumption that the distribution of the major Rorschach categories depended on the nature of the blots, and thus would vary more from series to series than from subject to subject. The results, however, went in the opposite direction: the total inter-subject variability was larger than the inter-series one. This finding should make a "Rorschacher" rejoice: yet I cannot see that it is actually very informative or very usable. I was much more interested in the information contained in the study about the types of blots that were productive of various types of responses, about the relationships between figural properties and the Rorschach categories. By means of more systematic experimentation we should be able both to make explicit what we know about these relationships from simple phenomenological observations, and also to add to this knowledge substantially. And such knowledge would have relevance for clinical theories. The clinician himself can make his best contribution to the understanding of projective techniques by studying their data in the context of studies of individual personalities, and he can provide the experimentalist with hunches which he gets in the process. But he can also in turn benefit in his pursuit of personal patterns by suggestions that arise from experimental analyses of these hunches, and of the projective instruments he uses.

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THE NON-PROJECTIVE ASPECTS OF THE RORSCHACH EXPERIMENT: IV. THE RORSCHACH BLOTS CONSIDERED AS PICTURES*

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Although the reactions of a person to an inkblot are said to be indicative of an act of *perception*, this usage goes against the commonsense meaning of that term. From a strictly psychophysical and toughminded standpoint, certainly, Rorschach reactions have very little to do with perception. The original experimenters with inkblots thought the responses were tests of *imagination* or *fantasy*. It has recently been suggested that what they induce in the subject is *misperception*. It is also said that they represent the *private world* of the individual, or what for him is *subjective reality*, and that this is *projected* in the process of looking at and reporting on the objects in question. Or it is suggested that we tend to *impose organization* on the "unstructured" stimulation provided by an inkblot.

All these terms, together with the theories they imply, are vague and unsatisfactory in different ways. A formula which seems to me to clarify the process, however, is to suppose that inkblots are responded to as *pictures*. The Rorschach reaction, then, would be a special kind of picture-perception, and this type of perception can be investigated in its own right.

A picture can be defined in objective terms. It is a physical surface so processed that it can reflect to an eye more or less the same sheaf of light-rays as would the original object or situation for which it substitutes (1, 2). This definition implies that a picture is always man-made, that is to say a fabricated source of optical stimulation, and that it is always an intended substitute for something removed in space or time. Whether it is traced, or painted by hand, or produced by photography, or in any other way makes no difference for the definition.

When a physical surface of this kind is responded to as a picture, it tends to evoke a rather special type of perception. The observer gets the experience of something else which is *not* the surface—something "in" the picture or "behind" the picture plane, as he puts it. Hence the percept obtained might be called *mediated* or *indirect*. All of us (in our culture at

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least) have a great appetite for this kind of perception. We spend a great deal of time at it. It provides experience at second hand of objects, places, people, and events which we shall never see at first hand. As children we begin both to make and to look at pictures, and we continue to do so throughout life.

The differences between visual perception and visual picture perception can be studied experimentally. If I take a piece of ordinary cardboard roughly oval in shape on which I have engraved or indented a crude profile, and hand it to a subject with the question, "What is this?" the answer will be sometimes "a man" and sometimes "a piece of cardboard." By systematically making the edges of the cardboard more regularly oval and the engraving less crude, I can reach a stimulus which yields the first response in 100 per cent of the subjects. By systematically making the edges *less* regular and the indentations *more* crude I can reach a stimulus which yields the *second* response in 100 per cent of the subjects. The two modes of experience are quite distinct.

The similarities between perception and picture-perception can also be studied. In very special circumstances of stimulation, the two meet, that is, the picture and the object pictured become indistinguishable. A colored photograph (or transparency) which is viewed with one eye through an aperture may be impossible to tell from the original scene photographed, when this is viewed through a similar aperture. Such a picture can be said to have perfect *fidelity* to the original.

Fidelity of a picture, then, is the degree to which it reflects the same *optic array to a point in space* as would the scene pictured. For the vast majority of the pictures of the world, especially hand made or chirographic pictures as compared with photographic pictures, fidelity is relatively low. The optical stimulation provided by a picture may differ from that of the original scene to any degree, and along many dimensions of variation. Obviously there are many different variables of optical pattern-stimulation in a sheaf of light-rays to an eye.

The variables of pattern or form, the order of the transitions between light and dark in the cross-section of the ray-sheaf, are clearly of major importance in fidelity. One has only to think of what can happen to a television-image to realize this. Some pictures, then, can have very low fidelity. Non-representative paintings, for instance, are low in fidelity. They are nevertheless responded to as pictures with both interest and esthetic enjoyment by many people. Artists believe that they can select, emphasize, or abstract from the optical stimulation of everyday life certain essential

variables of patterned light and thereby make us see only the important properties of the object.

We are now ready to define an inkblot. It is simply a picture with extremely low fidelity. A Rorschach card contains many of the stimulus-variables which characterize a painting or a photograph, but it lacks others which make a picture a faithful representation. It is a smooth surface with rectangular edges, an ordinary picture. It carries deposits of ink, or dye, or pigment, as a picture does. These produce transitions or margins of brightness and hue in the stimulus, which in turn constitute pattern or contour. Closed contours have qualities of form and other thing-like properties. There are also gradations of luminance, that is, gradual as well as abrupt transitions between relative light and shadow. There is even something of what artists call "composition" in a Rorschach blot. But it lacks the straight lines characteristic of a familiar scene. It has no optical texture or grain within the boundaries of the forms such as pictures of objects do. It has no linear perspective and it has no texture perspective, that is, no regular gradations of texture-density.

Hence a Rorschach inkblot *tends* to induce pictorial impressions of colors, shapes, edges, protuberances, indentations, interspaces, solids, and surfaces. These, not the classical "sensations," are the qualities which compose visual objects, places, and events—the human and animal forms, and the shapes of inanimate things which make up so much of our world. But these stimuli do not correspond geometrically to anything physically in existence, and the corresponding phenomenal qualities do not combine to yield phenomenal objects, places, and events which anybody ever saw. The blots use, as it were, the "language of vision" (3) without "saying anything."

The subject in a Rorschach experiment, therefore, is induced to name objects and even to report events suggested by them, but not to perceive a unique object or a single event. The complex of stimulation does not specify a particular entity of the human environment. The names he gives come from his repertory of perceptual responses and probably serve as an indicator of this repertory. In other words they tend to show the things and events in the world which he can identify, and which presumably he is interested in.

The complex of stimulation reflected from a blot probably includes incongruous variables. There exist conflicting stimuli for spatial perception in the array, analogous to the incompatible variables found in reversible figure-ground patterns, ambiguous perspective drawings, and equivocal relief figures. The kind of factors which are present in puzzle-pictures and hidden

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figures may also be present to some degree in inkblots. There are incongruent border conditions in them which constitute incongruent stimuli for edges and yield incongruent impressions of different solid objects. These combinations would then be expected to evoke fluctuating object-perceptions rather than stable ones. There is no "redundancy" in the information supplied by such stimulation. The particular objects which are reported, then, may indicate the qualities of things to which the subject is especially sensitive. If the so-called "determinants" of the responses have any rationale, it might be found here.

This formula permits us to go on assuming that ordinary perceptions are specific to their objects—an assumption which fits both commonsense and the facts of psychophysics—and also to assume that Rorschach reactions are relatively unspecific to objects. Perception, after all, is fundamentally the process by which one is *made aware of something*, and this primitive assumption is as necessary in the long run for the student of personality as it is for the student of psychophysics. Insofar as Rorschach reactions are diagnostic of personality, it is not because perception as such is diagnostic of personality or because the "structure" of perception reveals the "structure" of personality. *It is because the perceptual game played with pictures of low fidelity is diagnostic of personality.*

In order to make progress with the Rorschach experiment, an explicit and testable theory of visual perception is necessary. Within such a general framework, I suggest, a special theory of pictorial perception is what we need. To remain satisfied with a loose application of the Gestalt concept of perceptual organization is not sufficient. The vague notion that all perception consists of the structuring of unstructured stimulation is in danger of becoming a sterile formula, if it is not actually misleading. We must analyze stimulation, including the peculiar optical variables produced by light reflected from paper on which ink has been distributed by the unusual procedure we call blotting. There are surely still many untried variations of this procedure. The opportunities for experimental research are wide open.

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THE NON-PROJECTIVE ASPECTS OF THE RORSCHACH
EXPERIMENT: V. DISCUSSION OF THE CLINICAL
IMPLICATIONS OF THE NON-PROJECTIVE
ASPECTS OF THE RORSCHACH*

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A. INTRODUCTION

Although theoretical discussion and experimental research of the sort presented here can scarcely be expected to have an immediate impact on clinical practice, the questions raised concerning various "non-projective" aspects of the Rorschach method must unquestionably give pause to the thoughtful clinician. These questions compel a careful reexamination of the factors which interact in the formation of the final Rorschach response. Concretizing certain proposed analyses of a perceptual situation (14, 21) in terms of the Rorschach examination we may conceive of the ultimate Rorschach percept as the product of the interaction of three general classes of factors. These include (a) *the objective nature of the blots*, e.g., colors, shapes, intensities of shading, resemblance to frequently seen or clearly recognizable forms, etc.; (b) *the demand made upon the subject by the examiner*, e.g., the nature of instructions, the subject's interpretation or compliance based upon momentary physical states or his relationship with the examiner; and (c) *the long-term personality characteristics which the patient brings with him to the test*, e.g., habits of organization and perception arising from resolution of early conflicts or the current manifestations of intense needs, persisting anxieties, or unresolved conflicts. Clinicians have erred most in undue weighting of this last class of determinants thus lowering their prognostic or descriptive accuracy. The present symposium, in its emphasis on the potency of the first two classes of determinants provides a useful corrective and a challenge to clinicians to reevaluate their relative weighting of factors that go into production of a given response or protocol. In the discussion that follows an attempt will be made to locate the papers of the symposium in the perspective of these categories of perceptual determinants. Questions which clinicians must ask themselves about a given record and specific Rorschach examples pertinent to these questions will be presented.

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B. STIMULUS PROPERTIES OF THE RORSCHACH INKBLOTS

Gibson's analysis of the characteristics of the inkblots and his characterization of them as "pictures" of varying degrees of similarity to real objects goes a long way towards clarifying the concept of stimulus ambiguity. A basic rule of thumb in the interpretation of all projective material is that the less frequently given response, or the response that emerges when the stimulus material is more difficult to evaluate or to relate to known "pictures," is more likely to represent deep-seated needs or personal characteristics. Experimental evidence supports this rule (14), but its application imposes upon the clinician the task of obtaining sufficient information about the stimulus, its gestalt properties, its resemblance (based on frequency and patterns of association) to various objects frequently seen within a culture in order to be sure of his ground in assigning a personalized significance to a patient's response. Cultural stereotypes cannot be overlooked and the response "an atomic explosion" on Card IX no longer can be interpreted with the same weight that "an erupting volcano" might have been in pre-atomic days.

Much of Gibson's discussion can thus be seen as relating to the problem surrounding the form-level of a response. Rorschach (11) and Beck (1) have emphasized a statistical frequency approach to F+ and this would appear to be one answer to some of the points raised by Gibson. Perhaps a scale indicating *degree* of good form might be more desirable combining Klopfer's Form Level Rating with the more empirical system of Beck.

The excellent paper by Brosin and Fromm (2) serves as a useful supplement to Gibson's analysis of the stimulus properties of the blots. Brosin and Fromm pointed out some of the basic gestalt principles of organization relevant to the Rorschach plates. They called attention to the subtle interplay of shape, location, relationship to other blot areas, and related factors like closure and *pragnanz* to the various possibilities of response on the cards.

A few examples may point up the importance of considering these gestalt properties of the blots before interpreting a percept as a manifestation of deep-seated dynamics or personality style. Occasionally one hears the relative increase in responsivity manifested by the subject when shown Card X attributed to a "good recovery" or to "marked responsiveness" to affective (color) situation. This does not seem to be a parsimonious interpretation when we recognize that, quite apart from color, this card is broken up into many distinct sub-wholes. An integrated whole response is harder and D responses are easier than on a more solid "pregnant" gestalt like Card V,

for example. Such a divergence in stimulus characteristics explains in part why the Behn-Eschenburg inkblots are unsatisfactory as an alternate form of acceptable reliability for the Rorschach plates. The Behn's relatively clean-cut sub-wholes, reinforced by color that is sharper and less diffused across detail-zones, lend themselves to a greater range of FC responses. Hence we cannot be sure whether a change in FC responses obtained on a post-treatment Behn is the manifestation of a change in the patient or of a qualitative difference between the Rorschach and Behn blots (13). Finally, Leeper's (6) experiments suggest that sensory integrations of the type performed in giving Rorschach responses, once established, are extremely stable, easily remembered, and difficult to extinguish. If this is the case, the whole question of the retest reliability of the Rorschach or any other inkblot test becomes extremely complex because of the stimulus characteristics of the blots.

There are, however, many important features of Rorschach interpretation which involve stimulus characteristics but are beyond the scope of Gibson's discussion. Further analysis elaborating his suggestions might help clarify problems involved in interpreting sequency factors, e.g., the different behavioral implications of a response of relatively high frequency (F+) like "two bears" on Card VIII when it comes as an initial response or as a terminal response after a series of pure color responses. Similarly the recent increase in content interpretation demands considerable attention to the nature of the blot "pictures." The clinician with his ideographic approach might make rather important distinctions between the patient who calls the relatively clear-cut animal forms on II, V, and VII "puppies rubbing noses," "a butterfly," and "two mice," respectively, and the patient who responds with "two bears growling," "a vampire bat," and "two panthers on the prowl." All the responses are good forms but they suggest important personality differences.

Attention to the stimulus characteristics of the blots is also necessary if we are to interpret what the patient does *not* see, as is often done. To assume that certain cards represent father, mother, wife, sex, childhood experience is rather cavalier on the part of clinicians without some empirical work. Rather simple research techniques can help in providing more information upon which the clinician can raise hypotheses about evasiveness, repression, or perceptual defense. Claims for father or mother cards, or the meaning of "eye" responses, have been tested in preliminary ways (8, 20) but further attention to this problem is necessary.

Perhaps the single most important contribution of Gibson's paper is the

feeling it communicates that there is nothing sacrosanct nor completely unique about the present series of inkblots. A new look at what goes into making up these blots may permit us to develop many new series and many more refined, specialized uses of the basic perceptual techniques inherent in the Rorschach method.

C. TEST ATTITUDES AND MOMENTARY SITUATIONAL FACTORS

The papers by Siipola and Werner and Wapner would appear to make their chief contributions towards a clarification of this second category of Rorschach response determinants. In a sense we see a return to the consideration of the problem of the "aufgabe," the setting of the observer's task or his set, an area extensively studied by Kulpe and the Wurzburg school at the turn of the century. Siipola's research on task attitudes in Rorschach performance is one of the first systematic efforts to focus attention on what happens between patient and examiner as an influence on subsequent test performance. Quite apart from the susceptibility of the Rorschach determinants to alteration with markedly different instructions, the findings imply, pending further verification, that certain determinants mean different things depending upon the instructions or the pressure on the subject. Even those clinicians who resort to a completely "global" interpretative approach must certainly employ some nuclear meaning for the determinants in line with Rorschach's formulations. Siipola's report of Kuhns' findings that a given response like pure C has a varying rather than constant relation to personality depending upon experimental conditions, is challenging. It imposes upon the clinician a task of self-awareness to ensure either a stable attitude from one test situation to the next, or, more realistically, a greater attention to any slight changes in attitude and the dimensions of the immediate interpersonal relationship which might be reflected in test responses of the subject.

Examples at two levels of sources of variability may be considered. Rorschach's original instructions, "What might this be?", are phrased in the subjunctive tense, thus setting the subject's task to permit possibilities and not strict description. Keeping this freedom in mind, the response of one patient to each card: "A bilaterally-symmetrical inkblot of mottled black-gray color with differing intensities of shading" becomes all the more pathological and accurately descriptive of the unique manner in which this man is attempting to come to terms with his environment. Slight variations in instructions or in the way they are given can distort the subsequent meaning of responses, therefore, unless the nature and extent of these variations are kept in mind.

Similarly, Lord's (7) ingenious study has demonstrated that a number of marked changes in Rorschach determinants occur with differences in the atmosphere of the testing situation and differences in the personalities of the examiners. These differences are not random, however. Those persons with "M-type" experience ratios proved relatively more stable from one situation or examiner to another than did the persons with "C-type" ratios, a finding in accord with the nuclear meaning of these determinants. Reports such as these indicating variation in Rorschachs because of situational factors have on occasion been thought of as damaging to the clinical use of the Rorschach. On the contrary, such results would seem to be most helpful in pointing up to the clinician those dimensions of variation which must be scrutinized carefully to obtain optimal validity for the interpretation of a given protocol.

The paper by Werner and Wapner adds further evidence of important conditions that influence Rorschach performance quite apart from the basic personality of the subject. Physical states such as hyperactivity, inhibition, fatigue are undoubtedly tied in closely with the subject's manner of expression on the Rorschach. The clinician must be alert to these physical variations in order to evaluate his results. Of even greater significance, however, are the tentative steps taken in this paper toward a general perceptual theory within which the factors underlying certain Rorschach determinants can be incorporated. This is particularly true of Rorschach's Human Movement response (M) which is certainly one of the most unique and original features of the test. The research reported on the M response (9, 15, 16, 18) has tended generally to support Rorschach's view that a relationship between overt motor activity and movement perception exists. Werner's theory of vicarious functioning of sensory and motor activity through the common medium of tonic energy offers a systematic theoretical base for Rorschach's observations. By suggesting a connection between inhibition of motor response and production of movement percepts it also makes possible a better understanding of Siipola's findings on the attitudinal or time pressure factors conducive to production of Rorschach M. If Rorschach's empirical connection of overt movement, M, and fantasy can be verified Werner's theory may serve as a tool for comprehending the origin of imagination and its expression on tests. The clinician could then feel considerably more secure in his interpretation of the Human Movement responses. A problem that persists in this connection, however, is the proper functional delineation of the various types of movement responses. Werner's theory does not offer, as yet, a means of comprehending the behavioral differences,

if any, between the animal (FM), human (M), or abstract (m) content of the movement response.

D. LONG-TERM PERSONALITY FACTORS

The clinician is primarily concerned with obtaining evidence from the protocol concerning those long-standing habits or patterns of perception and thinking which the subject brings to the testing situation with him. These are the factors stressed by Hanfmann. Her emphasis on the need to see personality as an ongoing process of coming to terms with the environment, social and physical, is a helpful corrective to the "sign" approach which has all-too-frequently dominated literature in the field of projective techniques. The consideration of stimulus properties or situational factors as response determinants is necessary chiefly as a way of defining more precisely the nature of these long-term personality characteristics. The lesson the clinician must learn from this symposium is the importance of being sure of his ground in asserting that a given response is a manifestation of a basic personal characteristic which the individual carries around with him from one situation to another. Hanfmann's contrast of "perceptual" and "conceptual" modes of approach in problem solving (5) is an example of such a characteristic. Siipola's work also has implications for the definition of a basic task attitude brought to the testing situation by the subject. Her contrast of the differential modes of response under pressure shown by persons producing movement and color responses may represent another manifestation of the same characteristic described by Hanfmann. The positive relationship between the predisposition to delay response and the production of movement responses obtained by Siipola can also be assimilated with Werner and Wapner's concepts of the vicarious channelization of motion and motion perception (19). These researches mesh well with certain other general theories concerning the connection between the ability to inhibit immediate gratification through motor activity and the development of fantasy life (3, 10, 16). Thus, while the work on the increase in movement responses following a period of motor inhibition (9, 15) reveals that situational factors can influence Rorschach performance, other findings (9, 16, 19) suggest that basic personality factors are also involved. Certain people have developed a long-standing tendency to delay immediate gratification or a capacity to inhibit motor response generally. These people seem also to give more Rorschach movement responses. We can thus begin to see some of the behavioral correlates of this movement determinant emerging more precisely from the research in process.

Experimental research of this sort moves slowly by successive approximation. It will be a long time before speculations of Rorschach (11) and Schachtel (12) on the M response can be dealt with fully in a scientific way. Yet, from work of the type presented in this symposium, we may well move ahead toward a better understanding of fantasy and imagination and their perceptual and behavioral correlates under varying conditions of stimulation and external demands upon the individual.

A final example of this interweaving of theory, research, and clinical understanding may serve to point up practical implications of this symposium. Rorschach (11) had originally placed great importance on his rather loosely defined *flector* and *extensor* Human Movement responses. This dimension, although extended and elaborated by various authors, has not proved too useful in practice. Recent research has suggested, however, that the relative *activity* of the M percept is quite significant as an indicator of a long-standing personal characteristic. Thus, Thetford (17), using Zubin's scales of degree of movement, found important, predictable differences between schizoid and normal children in this dimension. Singer and Spohn (16), using ratings of Active and Static M, found that subjects producing relatively more active M were capable of greater motor inhibition and showed less spontaneous motor activity than those who produced relatively static M. This finding, of importance for theories of vicarious energy channelization like those of Werner and Wapner (19) or Freud (3), has a distinct practical significance to the clinician. It provides him with a more precise dimension along which to evaluate the movement responses of his patient and at the same time with fairly specific behavioral correlates of the response which he can use in his personality description.

Closer attention to the experimental possibilities inherent in the process of a Rorschach examination cannot fail to bring forth fruitful practical ideas and, ultimately, more refined and precise testing methods at the service of the clinician. This has been an objective of the symposium on "non-projective" aspects of the Rorschach and its results must certainly prove helpful and inspiring to the clinical psychologist.

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A MODIFIED INTERPRETATION OF THURSTONE'S FLEXIBILITY OF CLOSURE FACTOR*

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A. THE PROBLEM

In a factorial analysis of a variety of perceptual tests Thurstone (8) isolated a number of factors of which two, A and E, have since come to be regarded as speed and flexibility of closure respectively. The former was identified primarily by tests of shape constancy, P.M.A. space, performance on simple Gottschaldt figures, and block designs. The latter involved primarily skill in a test of two-hand coördination, ability to discover hidden figures in a larger Gestalt, and the P.M.A. reasoning test together with the Gottschaldt figures test occurring in Factor A. More recently Pemberton (5) and White (11) have used tests of concealed figures (a modification of the original Gottschaldt figures) and copying (an adaptation of the MacQuarrie mechanical ability test) (3) in order to specify the flexibility factor (E), the factor with which we are most concerned here.

Oliver and Ferguson (4), using the Gottschaldt figures test in a factorial study of rigidity, did not find any relation between it and their rigidity factor defined as the breaking of old established overlearned habits. In this sense the hypothesis that the factor defined by this test is concerned with flexibility which would ordinarily be thought of as the opposite of rigidity is not confirmed. However, these writers did find the Gottschaldt figures to have the highest loading on a reasoning factor defined in addition by a number of well-known reasoning tests including a number series.

Pemberton (5), too, found reasoning tests and the Gottschaldt figures and MacQuarrie type copying tests to be measures of the same factor. As Thurstone (8) had already observed that "since the reasoning tests of the primary mental abilities have significant loading on the factor E, one might wonder whether this factor represents one important aspect of intelligence," these findings may be taken as support for his observation.

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Referring specifically to the Gottschaldt figures test, Thurstone (8) also remarks that "it certainly seems reasonable that those subjects will have the best performance who can easily keep the given figures in mind without losing them when they examine the larger and more complex figures of the Gottschaldt test." Later (10) he refers to the flexibility factor as a whole as "the ability to keep a configuration in mind in spite of its distractors."

It seems, then, linking the hypotheses that the Gottschaldt figures test might be measuring (a) reasoning ability and (b) the ability to hold one thing in mind whilst examining another, that we might have an insight into the basis of reasoning ability. Thus it is possible that the basis of reasoning ability is the ability to hold one concept or stimulus in mind whilst examining a second concept or stimulus. Without becoming involved with any particular physiological model one might imagine the situation where a particular stimulus generates a decaying reverberating circuit. If a second stimulus occurs before the total decay of the original one we may talk about it as having been held in mind long enough to influence or interact with the second stimulus. Inasmuch as many of our contemporary intelligence and reasoning tests depend upon solving complex relationships which require the retention of several different conditions or relations simultaneously the hypothesis that reasoning depends upon this ability does not defy common knowledge. It could also be consistent with Furneaux's (2) "scanning" theory of problem solving, for unless the incorrect solutions were also retained within the scanning system one might expect an incorrect rejected solution to be re-examined time and time again unless some mechanism existed whereby this solution were retained even after rejection.

So much, however, is beyond the bounds of the presently available data even if consistent with it. The first point is to see if Thurstone's flexibility factor can be described simply as a factor of the ability to hold a stimulus in mind instead of, for instance, as Pemberton (5) defines it as "the ability to abstract common properties, to hold in mind simultaneously various aspects, to break up a given whole into parts, to plan ahead ideationally, and to shift from one aspect of a situation to another" (*italics ours*). So much would be acceptable to most psychologists as a general description of the reasoning process. Our contention is, however, that Thurstone's factor involves only that part of Pemberton's definition which we have italicized and it is that point which the present experiment was designed to test. Specifically, then, we may ask the question as to whether Thurstone's factor needs to be interpreted as one of flexibility in terms of breaking down present Gestalts or whether it is

simply measuring the ability to hold a given unfamiliar stimulus in mind long enough to reproduce it.²

To this end, seven tests were employed to measure this ability as far as possible, and factor analysed along with adaptations of the Gottschaldt figures and MacQuarrie tests as markers of the flexibility factor. As Scheier and Ferguson (6) obtained a correlation of .55 between factors of reasoning and rigidity as defined by Oliver and Ferguson (4) two tests of their rigidity factor were included in case the Thurstone factor should be coincident with it.

B. DESCRIPTION OF TESTS

1. *Crossing Out*

This test consisted of two pages of random numbers. On the first page the S's were given 15 seconds to circle all the 6's followed by 15 seconds to circle all the 8's. On the next page 30 seconds were given for the S's to circle alternate 6's and 8's. Score: $a + b - c$.

It was expected that in Part 3 those S's best able to hold in mind the last figure circled would be faster. The time was kept short to allow the findings to be compared with an earlier investigation which showed this test to have a high loading on the same factor as the Gottschaldt figures test.

2. *Gottschaldt Figures*

Part I only of Thurstone's test (8) was used with the standard instructions. Score: number correct in two minutes.

3. *Matching Ability*

This test was based upon the conventional type of clerical aptitude test like, for instance, the Minnesota Clerical Test (1). It consisted of rows of jumbled letters, numbers, and punctuation marks where in each row one had to be selected as exactly matching the standard group to the left. Stephenson (7) has also used a test of this nature as a measure of verbal intelligence. Score: number correct in one minute.

4. *Matching Ability: Numbers*

Apart from the fact that numbers alone were used, this test was similar to the previous one. As our hypothesis is particularly restricted to holding unfamiliar stimuli in mind it was expected that this test would be a poorer

²We have specified particularly an unfamiliar stimulus in order to distinguish between a remembered stimulus and one not yet incorporated into the memory system.

measure of the hypothesized factor than Test 3 above. Score: number correct in one minute.

5. *Copying I*

The *S*'s task here was simply to copy a random set of numbers on the top half of the page into the bottom half of the page. Inasmuch as the numbers did not follow any order and were broken up into groups of varying lengths *S* was not able to remember large portions at a time but had to refer continually to the original. In this sense the stimulus had to be kept in mind just long enough to write it and those *S*'s failing to do this by having to refer back more often than successful *S*'s would copy less material in the 30 seconds allowed for the test. Score: number of groups correctly copied.

6. *Copying II*

Introduced as a control for Test 5 in the same way that Test 4 was included as a control on Test 3 this test resembled Copying I except that a prose passage was used. Inasmuch as *S*'s would be expected to be able to remember long passages at a time through familiarity with language it was anticipated that this test would be less loaded in the hypothesized factor than Test 5.

7. *Dot Figures I*

This test was employed as the second marker test. Based upon MacQuarrie's (3) mechanical ability test and similar to Stephenson's *K*-test (7) it consisted of a series of unfamiliar straight line figures which were to be copied by joining the appropriate dots in a small square. Score: number correctly reproduced in two minutes.

8. *Dot Figures II*

Again this test was used as a control, this time the figures to be copied resembled letters, figures, and familiar shapes. The same time limit as above was imposed but as many of the subjects completed the test within the time limit it was not used in the analysis.

9. *Digit Symbol*

A lengthened version of the Wechsler sub-test. This test served two purposes. In the first case it clearly is superficially a direct test of the ability to hold an unfamiliar stimulus in mind and secondly, being a recognized sub-test of intelligence, it bears upon the hypothesis that intellectual ability is a function of the "holding in mind" ability. Score: number correct in two minutes.

10. *Directions Numerical*

In this test *S* had to perform simple additions and subtractions using unfamiliar rules and corresponds to the type of test in the Ferguson studies (4, 6) with the highest loadings on the rigidity factor. Specifically *S* was instructed to regard plus and minus signs in the usual manner when the upper figure of a two-digit sum was even but in reverse when the top digit was odd. Score: number correct in 45 seconds.

11. *Directions Verbal*

This test consisted of a set of 20 simple statements to be marked TRUE if they were false and FALSE if they were true. This test, too, was included as a marker for the Ferguson rigidity factor. Score: Number correct in 45 seconds.

12. *Number Series*

Scored as number correct in 10 minutes.

C. SUBJECT AND METHOD

Apart from the number series which was given at a second session the tests were arranged in booklets in the order described. Sixty-one *S*'s in two sections of a sophomore course in the Psychology of Adjustment took the battery of tests in two groups of 30 and 31 respectively. Of these 51 completed all the tests satisfactorily and all correlations were computed using these *S*'s only. Altogether the testing session lasted about 50 minutes with a second 10-minute session for the number series.

D. RESULTS AND DISCUSSION

The correlation matrix is shown in Table 1. All correlations are product-moment coefficients hence, with an *N* of 51, coefficients above .27 are significant at the .05 level and coefficients above .36 are significant at the .01 level. In Table 1 16 and 10 correlations satisfy these criteria respectively whereas at best 3 and 2 would be expected by chance. Even though these correlations are not all independent this may be taken as evidence of the significance of the table as a whole. In order to make all the column totals positive Test 1 had to be reflected so that the correlations of this test shown in Table 1 are with the test scored in the reverse direction.

A Thurstone centroid analysis (9) was carried out and after the extraction of the first factor only one significant correlation remained. The analy-

sis was therefore terminated at this point. Table 2 shows the test loadings on this factor.

TABLE 1
INTER-TEST CORRELATION MATRIX*

	1	2	3	4	5	6	7	9	10	11	12
1	()	.18	-.08	-.11	.02	-.03	.11	.09	.11	.28	.16
2		()	.47	.17	.45	.30	.65	.19	.06	.12	.08
3			()	.66	.58	.27	.52	.19	.02	-.07	.22
4				()	.40	.26	.26	.31	-.05	-.07	.19
5					()	.49	.56	.42	.35	.03	.20
6						()	.30	.23	.06	.13	.12
7							()	.21	.03	-.04	.20
9								()	.12	.11	.03
10									()	-.12	.08
11										()	.16

*Decimal points omitted. Test 1 signs reflected.

TABLE 2
FIRST FACTOR SATURATIONS*

Test	1	2	3	4	5	6	7	9	10	11	12
S	.16	.61	.67	.47	.86	.48	.67	.42	.14	.12	.31

*Test 1 sign reflected.

The highest loading of all was Test 5, Copying I, with a loading of .86, followed by the Matching and Dot figures (Thurstone copying) tests with loadings of .67 and the Gottschaldt figures with a loading of .61. Inasmuch as the copying and matching tests reflect our hypothesis the factor can be defined as one of the ability to hold an unfamiliar stimulus in mind. The Gottschaldt figures and Dot figures test have loadings on this factor comparable to the loadings found by Pemberton (5), and by Thurstone (8) on the factor interpreted as flexibility. It is reasonable, then, to argue that the simpler interpretation of this factor is preferable to the more complex one. Whereas the tests used in this battery can hardly be said to involve "the ability to abstract common properties . . . to break up a given whole into parts, to plan ahead ideationally. . . ." [Pemberton (5)] or the ability to "suppress the closure of the complex figures. . . ." [Thurstone (8)], tests used by these authors can be explained in terms of the ability to hold a given figure in mind. Both these writers do include this interpretation in the accounts of this factor, in fact in the omitted parts of the quotations above. Our contention is that this is *all* that is required of the available data and not the more complex statements as quoted.

It is significant to note that in his attempt to correlate auditory closure with visual closure White (11) found a relationship between only one of

his auditory tests and the flexibility factor. That test involved the recognition of a simpler melody in a more complex one and demonstrated the holding in mind factor rather better than the tests in the present battery inasmuch as the original stimulus was removed before the reproduction (or recognition in this case) was made.

It will be remembered that Tests 4 and 6 were included as controls for Tests 3 and 5 and that these tests were expected to be poorer measures than the former tests. In fact the loadings were .47 and .48 as against .67 and .86 respectively, showing that more familiar figures or stimuli are less highly saturated in the factor than less familiar ones. All in all, then, we may say with a fair degree of confidence that Thurstone's *E* factor is more properly interpreted in terms of the ability to hold an unfamiliar stimulus in mind than in terms of the Gestalt principle of closure by which other writers have referred to it.

The low loadings of Tests 10 and 11 which were included to test the correspondence between the Ferguson rigidity and flexibility factors is sufficient to indicate that they are not identical. The position of the number series with a loading of .31 parallels the findings of Pemberton (5) and to a lesser extent those of Thurstone (8). The relatively low saturation of this test and the digit symbol test with a saturation of .42 does not allow us categorically to interpret the present factor as one of reasoning ability. Thus while there is a strong possibility of the basis of reasoning being the ability to hold a "figure" in mind as indicated by this analysis formal proof of the proposition must await the findings of more direct experimentation.

E. SUMMARY

A number of studies have demonstrated the similarity between tests defining Thurstone's flexibility of closure factor and tests of reasoning ability. Although the usual interpretation of this factor includes such Gestalt concepts as "the ability to abstract common properties . . . to break up given whole into parts . . . [Pemberton (5)] and to "suppress closure . . ." [Thurstone (8)] it was argued that the factor could more parsimoniously be regarded simply as the ability to hold a given unfamiliar figure in mind. In this sense reasoning instead of depending upon perceptual or conceptual reorganization in the Gestalt sense could be regarded simply as the ability to hold a particular unfamiliar stimulus in mind long enough for it to interact with a subsequent stimulus.

Factor analysis of a number of tests including the Gottschaldt figures and

MacQuarrie type copying tests used to define Thurstone's factor led to the conclusion that the simpler "holding in mind" interpretation was adequate to account for the obtained results. While this investigation opens the way to an understanding of reasoning in terms of the "holding in mind" ability formal proof of the proposition by direct experimentation is still required.

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SOCIOMETRIC STATUS AND SUPERVISORY EVALUATION OF INSTITUTIONALIZED MENTALLY DEFICIENT CHILDREN*¹

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Professional workers responsible for the training, placement, and supervision of mentally deficient persons are aware of the primacy of social adjustment in the lives of their charges. Successful parole, placement, and release from the training institutions depends to a considerable degree on the patients' inter-personal relationships. The problem of measuring and evaluating their relationships is therefore of more than academic interest. A variety of techniques have been used in studying these problems. This study was concerned with the relationship between two different measures.

A. PROBLEM

It was the purpose of this study to investigate the relationship between sociometric status and supervisory evaluation of institutionalized mentally deficient children and adolescents. A secondary purpose was the investigation of possible correlates of sociometric status in this population.

There are few studies bearing on the primary problem. Hunt and Solomon (5) compared counselor ratings and sociometric status in a boys' summer camp group, and Gronlund (3) studied the relation between teacher evaluation and sociometric status of pupils. Both studies showed some tendency to positive correlation between the two measures. Using retarded children as subjects, Kephart (7) obtained an index of group unity without reference to individual status. Also with retarded children, Hays (4) compared *IQ*, *MA*, and *CA* to group acceptance without reference to adult ratings, and Murry (8) described consistency of choice in a group of English children.

B. METHOD

1. Subjects

Two groups of subjects were used: children and adolescents in a girls' ward and a boys' ward at the Woodward (Iowa) State Hospital and School during the summer and fall of 1952. The wards selected were those housing

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patients who were to receive academic training and who would probably become candidates for future placement. Some of the older patients in the groups were no longer receiving academic training but were assigned to institution jobs. (laundry, bakery, etc.). This was especially true of the girls' group. The characteristics of the subjects are set forth in Table 1.

The groups were quite similar, the principal differences between the

TABLE 1
CHARACTERISTICS OF SUBJECTS

	Age in months				IQ			
	<i>N</i>	Mean	<i>SD</i>	Range	<i>N</i>	Mean	<i>SD</i>	Range
Girls	77	227.4	98.7	102-489	72*	51.7	12.5	22-92
Boys	87	170.6	55.2	70-407	84*	46.4	16.2	20-82

*Intelligence tests were not available for some subjects.

groups being one of age. The girls, with a mean of 19 years, averaged five years older than the boys. They also tended to score a few points higher on intelligence tests. Most of the tests were Stanford-Binets.

Within the groups the patients had considerable opportunity to associate with each other; they ate in the same dining room, carried out their ward duties together, went to school and played together. Most of them had been with the group over a period of a year or more. The median term of institutionalization was six years, eleven months for the girls and two years, nine months for the boys.

2. Sociometric Testing

Three sociometric choice criteria were selected for the present study: (a) choice of eating associates, (b) choice of playmates, and (c) choice of working associates. Because many children could not read it was impossible to administer the sociometric tests by any group procedure. Therefore, each subject was interviewed individually. In order to minimize the possibility of spuriously high correlations between responses given to the three criteria each child was interviewed at three different times, one for each choice situation. The interval between interview sessions was at least one week; for the girls' group it was from two to three weeks.

Arrangements were made with the staff to put into effect a change in the seating arrangement in the dining halls according to choices obtained. Thus it was possible to present a realistic choice situation and it appeared that highly motivating conditions prevailed. After rapport had been established in the first interview, some introductory statements were made and then the subject was asked:

"Which girl would you like best to eat with you at your table?"

"Which girl would you like next best to eat at your table?"

This question was repeated for the third choice.

Then the same questions were put to the subject in a negative form.

"Which girl would you least like to have at your table?" etc.

The boys were questioned in the same manner, substituting the word "boy" for "girl."

Some of the children had difficulty in grasping the idea, particularly with respect to the persons they *did not* wish to sit with. In such cases the questions were repeated and when necessary, further clarification given.

For the play situation, following Frankel's (2) procedure, the subjects were questioned:

"What do you like to play outside? Who do you like to play that with best? . . . Who else? . . . who else?"

"Who would you rather not play that with . . ." etc.

A similar interview was carried out for choice of working associates, except that the child was asked what he did rather than what he would like to do.

While it would have been desirable to interview all the subjects before allowing those interviewed to communicate with those not seen, the number of cases and time available made this impossible.

3. Supervisory Evaluation

Ward attendants and nurses supervised the children's activities on the ward. These staff members (four on the girls' ward and two on the boys') provided an evaluation of behavior. These raters had no special training except that obtained incidentally in their duties. They ranked the children on three criteria:

- (a). How well the child got along with his peers.
- (b). How well he got along with adults.
- (c). How well he followed directions of adults.

These rankings were made by the staff members at the same time the sociometric data were being collected. The raters were asked to do their ranking independently. Rankings on the first criterion were collected before the material for the next set of rankings was distributed. No more than one set of rankings was obtained within any one week. It was suggested to the raters that they might find it easiest to select children first whom they felt should be ranked at the two extremes, order these two subgroups first, and then work with those in the middle.

4. *Statistical Methods*

The selection of statistical tools to study sociometric choice and rejection data poses some problems. Highly skewed frequency distributions or other non-normal forms often appear, especially if choices only are used. Such distributions may invalidate typical correlational techniques because of gross deviations from the theoretical model, particularly with respect to assumptions of linearity of regression and homoscedasticity imposed by tests of significance and prediction equations. Since rankings were used in the criterion data rank statistics seemed most applicable here. Kendall (6) provides an organized discussion of the use of these methods and their underlying theory. Many of the techniques used were drawn from his work (see 6, pp. 26, 29, 48, 81, 103). Cronbach's Alpha coefficient (1) was used to determine reliability.

C. RESULTS

1. *Analysis of Sociometric Data*

a. Intercorrelations of sociometric data. Different choice situations were used primarily to give a more stable estimate of an individual's status in the group and to minimize the effects of specificity of any one situation. Most of the analysis was based on pooled choices, but intercorrelations of the three choice situations are presented in Table 2.

The composite scores for each subject were obtained by treating rejections as negative choices, i.e., giving weights of -1 , and combining these with scores based on choices. Unit weights were assigned to all choices and rejections whether they were given first, second, or third. These intercorrelations show the generality of choice behavior from one situation to another and provide at least a minimal estimate of stability. All the coefficients given are significantly different from zero beyond the 1 per cent level of confidence. The tendency for intercorrelations to be higher for composite scores (mean $\rho = .55$) than for either choices or rejections alone would appear to be due to the increased reliability of the composite scores.

b. Distribution. The mean number of choices received by the girls and boys were, respectively, 8.1 and 8.0 with 7.5 and 5.9 for rejections. This demonstrates the relatively greater difficulty or hesitancy noted earlier in giving rejections rather than choices, especially among the boys. The means of the composite scores were 0.6 for girls and 2.1 for boys, with *SD*'s of 15.17 and 8.64. When plotted separately, the choice or rejection data showed markedly skewed distribution, and while the composite distributions were peaked, they differed from normality in their excess of extreme scores.

c. *Internal consistency.* Some degree of stability seemed apparent from the above. However, there may be a high degree of stability of choice behavior and, at the same time, little or no agreement of choices from subject to subject. Using Cronbach's Alpha coefficient (1) the composite data for the girls' group gave .912, and for the boys' group = .745. These coefficients

TABLE 2
INTERCORRELATIONS (RHO) OF SOCIOMETRIC STATUS SCORES*

Choice situation	A	B	C
<i>Choices only</i>			
Rating (A)			
Girls		.49	.40
Boys		.53	.49
Playing (B)			
Girls			.36
Boys			.66
Working (C)			
<i>Rejections only</i>			
Rating (A)			
Girls		.56	.52
Boys		.39	.48
Playing (B)			
Girls			.49
Boys			.47
Working (C)			
<i>Composite Scores</i>			
Rating (A)			
Girls		.57	.59
Boys		.49	.51
Playing (B)			
Girls			.62
Boys			.54
Working (C)			

*All coefficients are significantly different from zero beyond the 1 per cent level of confidence.

coefficients are equivalent to the mean of all possible split-half reliability estimates.

There was demonstrated then a high degree of consistency of choice behavior in the girls' group. For the boys' group the degree of consistency was lower, but may be considered satisfactory for group analysis.

2. Criterion Analysis

a. *Criterion intercorrelations and interjudge agreement.* Table 3 shows the average correlation between judges, ranking according to the same criterion, and the intercorrelations of the three criterion rankings where the data from all the judges have been combined for each criterion.

Higher agreement appeared among the four women ranking the girls than between the two men ranking the boys, perhaps in part because the men had been working with the boys a relatively short time. While some of these interjudge correlations were relatively low, the overall reliability was higher, especially when rankings on all three criteria were taken together to form a composite measure.

TABLE 3
MEAN CORRELATION BETWEEN JUDGES AND INTERCORRELATIONS OF CRITERIA*

Criteria for ranking			I	II	III
Relationship with peers	(I)	Girls	.52	.66	.48
		Boys	.35	.63	.53
Relationships with adults	(II)	Girls		.49	.79
		Boys		.38	.47
Following Directions	(III)	Girls			.75
		Boys			.68

*Mean correlations between rankings of different judges appear in the diagonal.

b. Relation of rankings to MA, IQ, CA, and length of institutionalization. There was a consistently significant correlation between the rankings and the chronological age of the subjects. Stanford-Binet *MA* also was a correlate, especially on "following directions." Length of institutionalization and *IQ* showed little evidence of relationship with the rankings.

3. Relation of Sociometric Scores to the Criteria

a. Sociometric status and the criterion rankings. The relationship between sociometric status and criterion rankings is shown in Table 4. The

TABLE 4
CORRELATIONS BETWEEN SOCIOMETRIC DATA AND CRITERION*

Sociometric variable correlated with criterion rankings	Rankings			
	N	P	t	P
Composite sociometric				
Girls	77	.489	4.85	<.0001
Boys	87	.612	7.12	<.0001
Choices received, only				
Girls	77	.28	2.52	<.02
Boys	87	.46	4.77	<.0001
Rejections received, only				
Girls	77	-.49	-4.86	<.0001
Boys	87	-.11	-1.08	>.05

**t*-values and associated probabilities are based on departure of the coefficient from zero.

correlation between these composite ratings was clearly significant. When choices and rejections were analyzed separately, the relationship was lower and differed markedly from one group to the other, but was still significant for the most part.

b. Sociometric status as related to MA, IQ, CA, and length of institutionalization. In Table 5 are presented the correlations of sociometric data with the other variables. Mental age and IQ tended to be positively correlated with both choices and rejections. Thus, in forming composite scores

TABLE 5
CORRELATIONS (RHO) OF SOCIO-METRIC DATA WITH FOUR OTHER VARIABLES

Sociometric data	MA	IQ	CA	Length of inst.
N Girls	.46	.46	.77	.77
Boys	.71	.71	.87	.87
Choices				
Girls	.42**	.46**	-.04	.02
Boys	.61**	.34**	.38**	.29**
Rejections				
Girls	-.09	.30*	-.28*	-.16
Boys	.25*	.20	.10	.22*
Composite				
Girls	.39**	.13	.16	.09
Boys	.35**	.14	.35**	.15

*Significant at 5 per cent level.

**Significant at 1 per cent level.

(choices minus rejections) the effects tend to be cancelled, almost completely eliminating the IQ relationship. Mental age was still positively correlated with the composite score, however. Length of institutionalization was not a generally significant correlate.

Since MA and CA were significantly correlated with the criterion data as well as the sociometric data, it was desirable to partial them out of the correlation between the criterion and the composite status scores. Holding first, age, and then MA constant statistically did not appreciably affect the relationship between the sociometric data and the criterion.

D. DISCUSSION

One problem with deficient subjects is that of eliciting responses which are true reactions to the experimental situation. In addition, there is the problem of communication. While special difficulties occur with some techniques and with some subjects, the main factor appears to be that of the general level of intelligence of the subjects. In this study it was found that

children with *MA*'s of less than three years generally failed to give choices. A majority of those testing above 3-6 were able to do so but the grasping of the negative concept, needed in giving rejections, seemed to require a higher level of ability. Few with *MA*'s of less than 4-0 were able to indicate whom they would rather not eat with, while most of those with *MA*'s above 4-6 seemed to understand what was requested and to give satisfactory responses.

Resistance to making choices was encountered in some subjects, but most were enthusiastic about the idea, especially in connection with the change of mealtime seating arrangements. Because of the high number of choices received by some of the girls, some complications in seating arrangements arose and adjustments had to be made. Those problems occurred much less frequently among the boys.

There was some resistance among the staff members to change in the dining room in view of some initial confusion. After a short period of readjustment mealtimes ran smoothly and the general response was favorable.

No attempt was made to relate subjects' personalities to their status, but from observation and description by staff members, without access to the sociometric data, some rather tentative statements could be made: (*a*) The highly chosen child appeared to be benevolent toward younger children, and seemed able to accept responsibility. (*b*) The ignored child tended to be rather quiet and withdrawn. (*c*) The highly rejected child tended to be noisy or subject to emotional outbursts and was not considered dependable.

The highly significant correlations between the sociometric scores and criterion rankings were consistent with the only related study, that of Hunt and Solomon (5). However, the relationship between sociometric status and intelligence criteria was contrary to most studies with normal children. Apparently these variables are significant correlates of choice in deficient groups. This was the case in the Hays (4) study, mentioned earlier. Perhaps the positive relationship to both choices and rejections suggests that the brighter are noticed more, for good or ill, than their duller peers.

E. SUMMARY AND CONCLUSIONS

The purpose of this study was to study the relationship between sociometric status and supervisory evaluation of institutionalized mentally deficient children. A secondary purpose was to investigate other possible correlates of sociometric status in this population.

The subjects were 164 mentally deficient children and adolescents in the Woodward (Iowa) State Hospital and School.

Sociometric choice and rejection status was secured in relation to three

situations: eating, playing, and working. Criterion rankings were secured from ward attendants and nurses in relation to three criteria: relationship with peers and with adults, and following directions.

Rank statistics were used to study the pooled choice and rejection data and the criterion rankings. The following conclusions appear to be justified by the data:

1. The subjects responded well to the sociometric interviews. Children with *MA*'s above 3-6 were generally able to make satisfactory choices, and those with an *MA* above 4-6 appeared able to comprehend sufficiently well to supply rejection data.

2. The sociometric data were stable and internally consistent.

3. A highly significant relationship was found between sociometric status within peer groups and supervisory evaluation based on selected traits. Partialing out *CA* and *MA* did not appreciably affect the relationship.

4. *MA* and *IQ* appear to be significantly related to the number of sociometric choices received. With the sociometric composite score (choices minus rejections) *MA* continued to hold a low positive but significant correlation but *IQ* showed no reliable relation with this composite.

5. Chronological age was not consistent in its relationship with the sociometric data and no generalizations are possible.

6. Length of institutionalization was not significantly related to status in these groups. However, most of these subjects had been together for a year or more.

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ACCURACY IN JUDGING EMOTIONAL EXPRESSIONS AS RELATED TO COLLEGE ENTRANCE TEST SCORES*

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A. THE PROBLEM

Accuracy in judging emotional expressions has been the subject of considerable research. Most frequently the experimental material has been a set of photographs of faces, with perhaps part of the body, showing posed emotional expressions. To what extent these expressions are genuine and to what extent they can be reliably judged have been called into question. Nevertheless, the best evidence indicates that emotions can be judged from photographs with some degree of accuracy (12, pp. 117f, 123).

Personal characteristics of the judges might be expected to exert some influence on the ability to judge correctly. Intelligence is but slightly related to accuracy in the judgment of emotions (10). Age is a factor, at least with children (7). Whether women are better judges than men is not clear, since experimental results have indicated now a difference in favor of women, now no significant difference between the sexes (1, p. 226; 2, 3, 6, 8, 9, 10). The vocabulary level of the judges has been recognized as an important variable, but rather in the sense of one needing experimental control. Although no one would fail to appreciate the influence of educational background, this factor has not been studied systematically.

The present investigation concerns the relation between accuracy in judging emotional expressions and the variables measured by a battery of college entrance tests. Aside from intelligence, these tests are of interest in as far as they indicate educational achievement in the tool subjects. The only hypothesis explicitly formulated was that accuracy would be positively and appreciably correlated with vocabulary score.

B. SUBJECTS

There were two groups of subjects. The first originally numbered 95 students in the second semester of a general psychology course; the second, 100 students in the first semester of general psychology. A considerable number of cases were lost because of missing entrance test scores or because

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of difficulty deciphering one or more responses in their protocols. The totals for the correlations involving the entrance tests varied from 67 to 69 in the first group, although 81 (38 boys and 43 girls) were available for the correlation with age. In the second group, the totals were 81 to 83 for the entrance test correlations, 99 (49 boys and 50 girls) for the correlation with age.

TABLE 1
MEANS AND STANDARD DEVIATIONS OF THE TWO GROUPS OF SUBJECTS ON THE
ENTRANCE TESTS

Entrance test	Ruckmick group		Carmichael-Roberts group	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>ACE:</i>				
<i>Q</i>	38.48*	11.01	38.56	8.91
<i>L</i>	63.30	14.35	63.14	13.25
Total	102.00	21.35	101.75	19.30
Reading:				
Vocabulary	39.22	8.00	40.98	8.24
Total compr.	69.40	11.19	71.15	11.50
English:				
Mech.	51.22	9.18	50.31	9.63
Effect.	53.64	10.32		
Mathematics	11.85	7.42	11.87	6.20

*All are raw score units except for the English tests, in which scaled scores have been used.

The mean entrance test scores and the standard deviations, which are presented in Table 1, indicate that the two groups were about equal in scholastic ability and achievement; at least somewhat alike in variance. The mean age for each group was 19.4; the standard deviations were 1.3 and 2.4 respectively. The great majority of the subjects were freshmen. Only a handful could have had any previous acquaintance with the pictures or any appreciable knowledge of the question of judgment of emotional expression.

C. MATERIALS AND PROCEDURE

The Ruckmick set of 32 pictures was used with the first group. Each subject was given a list of 45 terms designating emotions or emotion-toned reactions, which were selected primarily from Ruckmick's manual (11). These terms were in alphabetical order and were preceded by a letter or pair of letters which was to be used in recording the judgment. The record form contained conventional instructions for judging and recording; place for name, date, age, sex, and similar data; and the identifying numbers of the pictures, with space for entering the code letters and additional remarks.

The subjects were taken in groups of about 20 on the average, the pictures being handed along from one subject to the next.

The second group used the Carmichael-Roberts set of 35 photographs (3). These show the hands, together with the wrists and part of the forearms, in a series of gestures which were intended to portray various emotions. In each case, both hands are seen joined or juxtaposed, against a black background. A list of 50 terms was given the subject. For the most part, the terms were the same as those previously used. The recording form was the same as that for the first group, except that instructions called for writing out the names of the emotions instead of using code letters. The subjects were taken singly or in groups of no more than 5. The pictures were shown by the experimenter one at a time in such a position that all could see them readily. Vigilance was exerted to prevent copying.¹

Scores on the following entrance tests were obtained: The American Council on Education Psychological Examination (*ACE*), College Form, 1946 Edition; Diagnostic Reading Tests: Survey Section, Form *A*; Coöperative English Test, Higher Level, Form *Y*: Test *A*, Mechanics of Expression, and Test *B*, Effectiveness of Expression; Coöperative Mathematics Pretest for College Students, Form *X*. Only two scores of the Diagnostic Reading Tests were used: Vocabulary, which is a measure of general reading vocabulary, and Total Comprehension, which is a gross score including vocabulary, retention and comprehension of easy reading material, and comprehension of textbook material (5). Scaled scores were used in the English tests; raw scores, in the others. The test on effectiveness of expression was omitted with the second group.

The measure of accuracy in the judgment of emotional expression requires explanation. After a tabulation of all the judgments for each picture, the emotional terms were grouped into categories and the tabulations combined accordingly. For example, with the Ruckmick set, suffering, pain, and anguish were placed in one group, which was called suffering. There were 13 such groups for the Ruckmick set and 14 for the other. Those pictures were then selected on which a good percentage of the subjects agreed as to the broad category. The criterion was 50 per cent for the Ruckmick and 45 per cent for the Carmichael-Roberts set. On the assumption that the categories designated by these percentages of the subjects were the correct ones for the given pictures, deviations from these modal categories were reckoned

¹The Ruckmick data were gathered by John F. Sullivan as an adjunct to his master's research; the Carmichael-Roberts data, by Donald J. Cosgrove as an integral part of his thesis. The writer wishes to acknowledge their generous coöperation.

as errors. In order to give greater weight to deviations on those pictures which showed greater percentages of agreement, scores of 1, 2, or 3 were assigned. The final score was the sum of the weights; it was based on 16 pictures of the Ruckmick set and 12 of the Carmichael-Roberts set. Strictly speaking, this was an error score. However, since accuracy was measured, albeit inversely, it has been referred to as an accuracy score and the signs of the correlations have been reversed for convenience in interpretation.

D. RESULTS AND DISCUSSION

Table 2 contains the correlations of the accuracy scores with the entrance test scores in both groups. As in Kanner's study, skill in judging emotional expression is at best only slightly related to intelligence. Ability to deal

TABLE 2
CORRELATIONS OF ACCURACY SCORES WITH ENTRANCE TEST SCORES

Entrance test	Ruckmick pictures	Carmichael-Roberts pictures
<i>ACE:</i>		
<i>Q</i>	.070	.093
<i>L</i>	.201	.201*
Total	.171	.162
Reading:		
Vocabulary	.080	.097
Total compr.	.182	.012
English:		
Mechanics	.412**	.204*
Effectiveness	.452**	
Mathematics	.022	-.003

*Almost significant at the 5 per cent level.

**Significant at the 1 per cent level.

with quantitative material, as indicated by the *ACE Q* score seems to have practically no correlation with accuracy (.070 and .093). It is possible that linguistic, or verbal, ability, as measured by the *L* score, is significantly related to accuracy, since the correlation (.201) almost reaches the 5 per cent level of confidence in the second group. This figure agrees remarkably with Kanner's (10) estimate of .21. These results, of course, are for a comparatively select group and certainly cannot be extended beyond a college population.

The hypothesis that accuracy is related to vocabulary is clearly not substantiated (*r*'s of .080 and .097). However, the case might be different if one employed a test composed entirely of emotional terms. Although definitions were given the second group if they requested them, it is still possible

that the subjects differed widely in their knowledge of the various shades of meaning.

The r 's of .182 and .012 for reading comprehension are perhaps best interpreted to indicate a lack of relationship to accuracy. In regard to mathematics, one would, indeed, be startled if he found more than a zero correlation; in fact, these scores were used simply because they were available.

Surprising, however, were the results with the two English tests. With the first group, the correlations were .412 and .452 respectively and were significant at the 1 per cent level. Unfortunately, the second group had been given only the test in mechanics of expression. Although the r had dropped to .204, so that it was not quite significant at the 5 per cent level, it was still high enough to suggest further research. Achievement (or ability) in literary studies may turn out to be a significant variable.

Because of Gates' (7) results with children, correlations with age were also computed. These were $-.061$ and $.038$ for the two groups. The most natural interpretation is that age has ceased to influence ability to judge emotional expression by the time college is reached.

The two sexes differed significantly in both groups. In the first group, the mean accuracy score of the boys was 9.54 ($SD: 4.09$); of the girls, 6.93 ($SD: 3.62$). In the second group, the mean of the boys was 9.08 ($SD: 3.04$); of the girls, 7.76 ($SD: 3.51$). These differences, which were significant at the 1 and the 5 per cent level respectively, would seem to indicate that the girls are better judges than the boys, since the lower numbers indicate greater accuracy. However, the mean on the *ACE L* Score, which shows some correlation (.201) with accuracy, was also higher for the girls in both instances. To determine whether the differences in correctness of judgment might reasonably be attributed to the differences in linguistic intelligence, the distributions of the two sets of scores for boys and girls were cut in two as near the mean as feasible, and Chi-square was computed. For the first group, the result was 3.816; for the second, 1.299. Neither figure is significant. Hence, the conclusion seems to be that the apparent sex difference can plausibly be attributed to the girls' superiority in linguistic intelligence. Perhaps chance variations in this factor accounted for the conflicting results obtained by other investigators.

E. CONCLUSIONS

Admitting the usual limitations as to population sampled, measurement error, experimental restrictions, and so on, we may formulate the following tentative conclusions:

1. The hypothesis that accuracy in judging emotional expressions is positively and appreciably related to vocabulary is not borne out.
2. Accuracy is, at most, only slightly related to intelligence, the more linguistic, or verbal, aspects of intelligence rather than the quantitative.
3. It appears to have some connection with achievement in English.
4. It is not related to reading comprehension, to knowledge of mathematics, or to age at the college level.
5. Most likely, college boys and girls do not differ significantly if intelligence is held constant.

F. SUMMARY

1. The Ruckmick pictures of facial expressions of emotions and the Carmichael-Roberts pictures of hand expressions were presented to 95 and 100 college students respectively, who were asked to indicate the emotions portrayed. On the assumption that the modal judgment was the correct one, at least for those pictures on which there was good agreement, the protocols were scored for accuracy, i.e., agreement with the modal judgment. These measures were then correlated with college entrance test scores. The only preselected hypothesis was that accuracy in judging emotional expressions would be positively and appreciably related to vocabulary.
2. The results indicated practically no such correlation (.080 and .097). Intelligence, as measured by the *ACE*, showed correlations ranging from .070 and .093 for quantitative ability to .201 for linguistic ability. For reading comprehension the *r*'s were .182 and .012; for mathematics, .022 and —.003. In the field of English, effectiveness of expression yielded a correlation of .452; mechanics of expression, .412 and .204. For age, —.061 and .038 were obtained. The girls proved to be more accurate than the boys, but the difference may be due to the girls' advantage in linguistic ability.
3. The results did not support the hypothesis that accuracy in judging emotional expressions is positively correlated with vocabulary. The influence of intelligence is not very great. Reading comprehension, mathematics, and age at the college level do not affect ability to judge correctly. Achievement in the mechanics of English and in effectiveness of expression shows promise of being a significant variable.

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THE ROLE OF EMOTION IN PREJUDICE*

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A. INTRODUCTION

Prejudice has been described as "... an emotional attitude" (4), and as "... a fact of mental organization" (1). This is to say that some attitudes can be rubricated as prejudices principally upon the basis of degree of emotional concomitance. Aside from the fact that there are, no doubt, other variables which particularize prejudice, emotion has generally been looked upon as one of the most important (3, 6, 10, 11). Specifically the question is: are some attitudes more emotionally fortified than others? If the answer is affirmative, then there is increased reason to assume the legitimacy of the prejudice rubric. Evidence in support of this contention is not impressive.

This exploratory study was designed to throw light upon the rôle that emotion plays in attitudinally directed behavior. Two hypotheses with respect to this problem were proposed. (a) When the name of a group for which a subject has expressed a strong positive attitude is the referent in a statement which is derogatory to that group, he will display relatively great emotion as measured by *PGR*. (b) When the name of a group for which a subject has expressed a strong negative attitude is the referent in a statement which is complimentary to that group, he will display relatively great emotion as measured by *PGR*.

B. PROCEDURE AND EQUIPMENT

Autonomic activities seem to be as reliable as any of the many indexes of emotion which have been experimented with (5). And many experimenters have used *PGR* to describe such activities, even though the actual physiological events which are responsible for *PGR* are still not clearly agreed upon (8). Enough evidence is now at hand, however, to suggest strongly that whatever *PGR* is it can be taken as a rough indication of autonomic mobilization, and hence, emotional intensity.

PGR techniques have been used to study the emotion instigation values of various types of stimuli. For instance, *PGRs* have been shown to be

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relatively great when stimulus words are conflicting (7), critical (9), meaningful, significant, and important (2) for individual subjects.

In the present study interest resided in discovering if when very strong attitudes are held up to critical inspection subjects show relatively great emotional responses. The study design fell into two parts. The first part involved administering ranking and rating scales to freshman college subjects, and then selecting for individual study those subjects whose extreme rankings were confirmed by their ratings. The second part consisted of individual laboratory sessions in which *PGR* measurements were made.

In a group session subjects completed rating and ranking scales, the stimulus items of each being the names of 20 ethnic and national groups. The completed pairs of scales were then examined for consistency. Those subjects whose extreme rankings, positions "one" and "20," were respectively accompanied by "like intensely" or "like quite a bit" and "dislike intensely" or "dislike quite a bit," were selected for individual study. It was assumed that if a subject ranks a group last (position 20) and rates that group at an extreme position, there is reason to suppose that the subject has a strong negative (prejudicial) attitude toward that group. Twenty-six of 126 subjects met this criterion, and, of these, 20 were available for individual study.

In individual sessions subjects were told that the study was designed to validate the *PGR* method. It was emphasized that thinking, not verbal response, was of importance; and, in fact, that recordings would not be made of anything they might say. They were instructed to attempt to "visualize" a social situation in which certain statements were made. Each statement, it was explained, was made by a different person, each of international importance. Subjects were instructed to associate freely and to verbalize about the statements if they wished, or to remain silent if they felt they had nothing they wanted to say. Emphasis was placed upon the point that it was desired that they not simply report whether or not they agreed with the statement; but that they think about the statement, "turn it over in their minds." Testing was begun only after apparent rapport had been established and the subject was well "balanced in."

Four brief statements were read to each subject. Each statement was designed in such a way that the name of any group could be inserted into it. Two of the statements placed the inserted group in a derogatory light and two placed the inserted group in a favorable light. For a given subject the name of his most favored group was inserted into one of the derogatory and the name of his most disliked group into one of the complimentary statements. For the same subject, the names of his ranking positions 10 and 11

were inserted into the two remaining statements—one derogatory and one complimentary. The order of presentation of the attitude objects (ranking positions 1, 10, 11, and 20, as confirmed by ratings) was randomized in such a way that the equipment operator had no way of knowing either content or strength.

A "settling" or "further balancing in" statement was read to subjects just before commencement of the reading of the four "test" statements. This statement was innocuous and always contained the subject's ninth preference position.

The equipment used was the Stoelting Psychogalvanoscope (No. 24207) and a stop watch. As a statement was being read, and following, the equipment operator observed two things: needle deflection and time. He took his cue in each instance from the commencement of the reading of a statement. As, if and when the needle passed the fifth calibration mark (the "pin" is at 35—maximum) he started his stop watch. He stopped his watch when the needle touched the fifth calibration mark on its return. Thus, he recorded only two factors for each statement read: maximum needle deflection and time from and to the fifth calibration mark.

C. RESULTS

It was assumed that a galvanometric deflection represents *rate* of "emotional energy" expenditure. Therefore, the value of a given response was calculated as magnitude of deflection multiplied by duration. Such a product can be referred to as a "raw score."

Because of differences in response level between subjects, raw scores could not be directly compared from subject to subject. Therefore, to make inter-subject comparisons possible, differences between the raw scores of each subject were converted into ratios.

In essence, the two hypotheses hold that emotional responses to statements which include strong attitude objects will be great as compared with responses to statements which include weak attitude objects. In order to provide a control by which distributions of ratios could be judged, the ratio of response to preference position No. 10 stimulus object and preference position No. 11 stimulus object was calculated for each subject. Since these stimulus objects were of minimum strength the ratios would be expected to distribute themselves normally, and the mean of the distribution would not be expected to differ significantly from 1.00. This is to say that responses to No. 10 would be expected to be greater about half of the time and vice versa. This, in fact, was found to be the case. Three cases fell within the

1.60 interval; 1 in the 1.40; 4 in the 1.20; 5 in the 1.00; 3 in the .80; 3 in the .60; and 1 in the .40. The mean of the distribution was 1.02. Number 11 exceeded No. 10 for half of the cases, failed to exceed 8 times, and tied 2 times. For these subjects, then, differences between responses to weak attitude objects were very small and quite normally distributed.

When differences between responses to minimum strength attitude objects and maximum strength attitude objects were converted to ratios, the distributions were found to be very unlike the distribution just described. Here, the raw scores of responses to maximum strength attitude objects were consistently greater than those to minimum strength objects. This was consistently greater for the ratios between No. 20 and the mean of No. 10 and No. 11 than for the ratios between No. 1 and the mean of No. 10 and No. 11. The central tendencies of these ratios were considerably above 1.00, the scores for responses to maximum strength objects being the greater. If, again, 1.00 is taken as the most probable ratio, and therefore the expected mean, both of these distributions are badly skewed.

The mean ratio of No. 1 to the mean of No. 10 and No. 11 was 7.72. The median ratio was 1.55, the range being .04 to 120.00. The mean ratio of No. 20 to the mean of No. 10 and No. 11 was 8.21. The median ratio was 1.90, the range being .49 to 110.00.

Inspectionally these distributions are quite different from the apparently "normal" distribution of ratios for No. 10 to No. 11. It cannot be denied that the latter two depart from normality so much that some variable must be suspected as responsible for the departures. Such a suspicion does by no means prove that attitude strength is that variable. But since all other known variables were controlled, within the purview of this study, attitude strength may well be suspected as that variable.

If we look now to the raw scores themselves, support only for the second hypothesis is clearly evident. The first hypothesis asserted that subjects would respond (emotionally) excessively to positive content attitude objects for which there was maximum strength. In 14 of the 20 cases responses to these were greater than to minimum strength objects. In this instance the probability is .0594. Since this would occur about once in 17 times, evidence in support of this hypothesis is not great by way of this description.

The second hypothesis asserted that subjects would respond (emotionally) excessively to negative content attitude objects for which there was maximum strength. In 19 of the 20 cases responses to these were greater than

to minimum strength objects. In this instance the probability is .00007. Obviously, the hypothesis is supported by way of this description.

D. IMPLICATIONS

This study is to be regarded as preliminary and exploratory. Several improvements in design, equipment, and control suggest themselves. However, the findings of this study throw some light upon the rôle of emotion in attitudinally directed behavior.

One variable generally used to characterize prejudice is emotionality. Another characterizing variable is strength. Since strength is so relatively easy to measure it is frequently used as the sole criterion by which attitudes are specified as prejudices. Thus, if a certain kind of attitude is found to have unusual strength, it is then usually thought of as a prejudice, and it is assumed that it is emotionally fortified. Evidence in support of this assumption is provided by this study.

The findings of this study suggest that prejudice fortification is greater when the attitude content is negative than when it is positive. If further study shows this to be true there will be additional reason to challenge the view that any attitude belongs at some point along a balanced continuum from extreme positive to extreme negative. Though it still might be convenient to think of extreme positive and negative attitudes as opposite they could not be thought of as *equally* opposite. The cognitive and affective implications of such a finding would be theoretically interesting and practically important.

In a pilot study which preceded the present study it was found that simple questioning about a subject's scale-identified prejudices elicited little emotional response. It was only when, as in this study, a subject's positive prejudice object was cast in a derogatory light or his negative prejudice object was cast in a complimentary light that significant amounts of emotionality appeared. While there were no instances of displays of overt emotionality in so far as the experimenters could directly observe, the galvanometer indicated that there is emotional upset when a prejudice is held up to critical inspection. If further study shows this precisely to be the case, then the rôle of emotion in prejudice must be thought of as supportive. Such a finding would have importance in the development of effective techniques for the prevention and modification of prejudice.

Scaling devices of the types employed here are in need of further validation. If the results of the present study are to be trusted, they can be used as validation data for such rating and ranking scales. That when both strong

negative and strong positive content attitude objects were held up to critical inspection they were accompanied by relatively high levels of emotional response would indicate that such a combination of rating and ranking scales can be used to identify certain attitudes which differ dynamically from "weaker" attitudes. Further study may show, then, that attitude strength and emotional support are positively correlated.

E. SUMMARY

Simple rating and ranking scales were used to screen subjects who indicated prejudices (strong positive and negative attitudes) toward certain groups. Those so screened were tested individually for the degree of emotionality which accompanied the use of strong negative, strong positive, and middle-area attitudes. Level of emotionality was described as the psychogalvanometric reading multiplied by duration.

The two hypotheses examined resulted in the following findings. When levels of emotion which accompanied the use of strong negative attitudes were compared with levels which accompanied the use of middle-area attitudes, the former were overwhelmingly in excess. Consistently, but less dramatically, the same was found for strong positive attitudes.

Evidence in support of four assumptions was suggested. Very strong attitudes (the *kind* being "human group") seem to be accompanied by relatively great emotional support. Strong negative and positive attitudes do not seem to be *equally* opposite. Emotion seems to play a supportive rôle in attitude dynamics. Attitude strength and level of emotional support seem to be positively correlated.

The results of this exploratory study bolster the contention that strong social attitudes are emotionally supported. Strong social attitudes are usually referred to as prejudices. Therefore, the results of this study favor the contention that prejudices are "emotional attitudes."

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SOCIAL INTERACTIONS OF RHESUS MONKEYS: I. FOOD-GETTING DOMINANCE AS A DEPENDENT VARIABLE*

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A. INTRODUCTION

The phenomenon of social dominance has been widely investigated at many levels of the phylogenetic scale. The dominance-submission relationship within groups of animals is perhaps the most pervasive manifestation of social interaction throughout the animal kingdom apart from the inter-individual behaviors necessitated by the sexual response.

Dominance behavior is characteristic of groups of infra-human primates. Carpenter has observed the social behaviors of a large number of primate species in their natural habitat. He reported (4, 5) considerable variability between the dominance behaviors of the different primate species. The dominance status of groups of monkeys was found to be related to the size of the group's territory and to the integration within the group. A number of experimental studies by Yerkes (14), Crawford (7, 8), and Birch and Clark (2, 3, 6) were designed to investigate the relationships between sexual status of the female chimpanzee and social dominance. Maslow (11, 12) has reported a number of excellent investigations of primate dominance. Maslow and Flanzbaum (13) attempted to relate social dominance status of monkeys to other behavioral phenomena to determine the "behavior syndrome of dominance."

Recently, Brody and Rosvold (1) have reported the use of dominance as a dependent variable to assess the effects of pre-frontal lobotomy on the social behavior of a group of rhesus monkeys. They found that dominance status could be altered by lobotomy.

The present study was designed to determine the stability of the social dominance of a group of rhesus monkeys over an extended period of time.

B. SUBJECTS

Ten young rhesus monkeys (Nos. 52-61) were the subjects in this study. Eight of the animals were males and two were females (Nos. 60 and 61).

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These animals arrived at the laboratory at the same time in July, 1952, and were all about 5.5 pounds in weight at arrival. They were tested on object-quality learning and in oddity learning where social interaction effect upon learning was investigated. In addition, in February, 1953, all these monkeys were given avoidance conditioning training and subsequent extinction. The animals were housed in pairs and cagemates were changed frequently so that each animal had lived with all other members of the group.

C. METHOD

Dominance tests were conducted in the Wisconsin General Test Apparatus (*WGTA*) (9). A pair of animals was introduced into the restraining cage of the *WGTA* and the experimenter observed their initial interactions for a period of about one minute. Then each animal was given one raisin by the experimenter. A single raisin was then placed in the center of the movable tray of the *WGTA* and the attention of both monkeys was attracted by tapping the tray with the forefinger. After three seconds, the tray was pushed forward within grasp of the animals and the experimenter noted which of the pair obtained the food. After one animal had taken the food the tray was pulled back. After a 15-second interval another raisin was placed on the tray, the animals' attention drawn, and the tray pushed forward. This was repeated until a total of 10 pieces of food had been taken from the center of the tray. Finally, each animal received a raisin to conclude the dominance testing. In the event that vigorous interactions such as fighting occurred, the presentation of food was delayed until such time as both animals attended to the food. The experimenter remained in full view of the animals throughout the dominance test. In addition to recording the number of pieces of food which each animal received, the experimenter also noted aggressive behaviors, grooming, presenting, and mounting.

A complete dominance series involved the pairing of each animal with every other animal for a 10-raisin test. Since the group consisted of 10 animals, 45 pairings were tested in each dominance series. These pairings were made according to a prearranged schedule so that each animal was tested with two others on four consecutive days and with one other animal on the fifth day. There were 10 pairings tested for four days and five pairings on the final day.

A total of six dominance series was tested between January, 1953, and April, 1954. The intervals between dominance series were 30 weeks, 2 weeks, 2 weeks, 29 weeks, and 1 week respectively.

D. RESULTS

The dominance rank of each animal was computed for each of the six dominance series. The ranks were determined by counting the number of animals over whom a given individual was dominant. The monkey which was unsuccessful in obtaining a majority of the pieces of food from any other animal was ranked No. 10 in dominance. In the case of ties, the animal receiving the greatest total number of raisins in the pairings with other animals was assigned the higher rank.

Rank correlations were calculated between each of the dominance series. These inter-correlations appear in Table 1. A composite sociogram utilizing the dominance scores of the six dominance series is shown in Figure 1.

TABLE 1
RANK-DIFFERENCE CORRELATIONS BETWEEN SUCCESSIVE DOMINANCE SERIES

Series	1	2	3	4	5
2	.73*				
3	.86**	.87**			
4	.79**	.85**	.75**		
5	.82**	.84**	.87**	.76**	
6	.72*	.90**	.92**	.73*	.94**

Significantly greater than zero at:

*.05 level.

** .01 level.

E. DISCUSSION

The dominance status of individual monkeys and the dominance structure of the group of 10 monkeys were found to be relatively stable phenomena. The rank-correlations between successive dominance testings over a 15-month period (Table 1) were all found to differ significantly from zero (10, p. 367).

The investigator working with dominance is faced with rather special problems if he desires to use this task as a dependent variable. In the first place, the measures of dominance behavior constitute an ordinal scale. One cannot safely assume equal intervals between scores based on the number of pieces of food obtained in the dominance tests. For this reason, one must reduce to ranks what on the surface appear to be quantitative scores. The use of an ordinal scale also creates a problem in the use of the task as a dependent variable. In order to demonstrate that an independent variable has had an effect upon dominance, one must get a reversal of dominance status between the animals involved.

In addition to the considerations of dominance as an ordinal scale, it is inherent in the dominance situation that the score of one animal is dependent upon the score of his competitor. In the case of pairings in which dominance is complete, i.e., one animal obtains all the food while the other animal receives none, one has obtained little information concerning actual distance

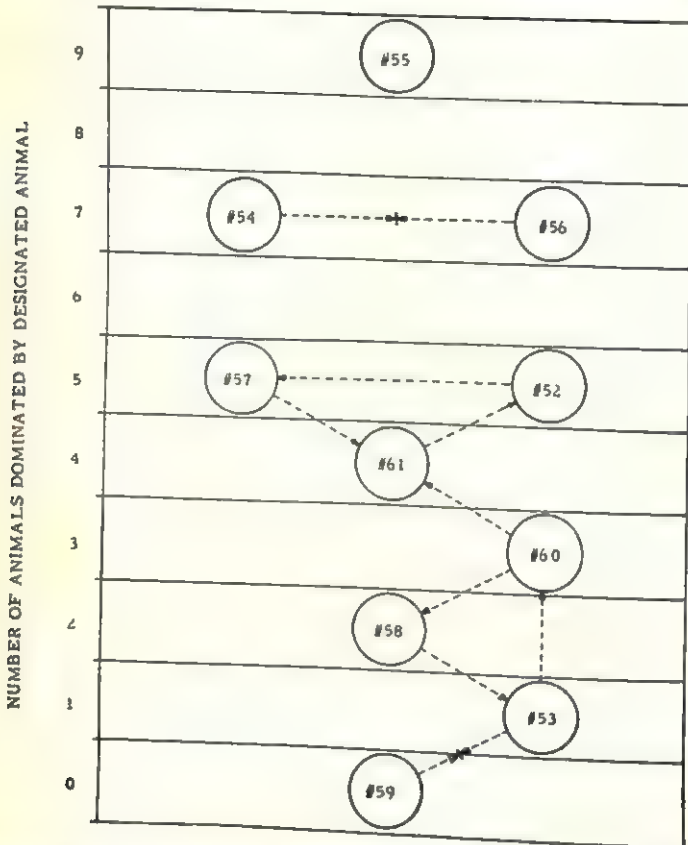


FIGURE 1
THE DOMINANCE-SUBMISSION RELATIONSHIPS WITHIN THE GROUP OF 10
RHESUS MONKEYS

between the dominance ratings of the animals. In other words, one has no direct method of estimating the dominance status of two animals from the scores each obtained from a third monkey if both scores were zero. The testing of all possible pairings of animals enables the investigator to place the animals along a continuum of dominant behavior with more confidence.

Since it was intended to use the dominance measure as a dependent variable, animals homogeneous in size, weight, and laboratory experience were

selected for study. It was apparent that these animals were able to reverse their dominance relationships somewhat though an individual animal rarely changed position by more than one or two ranks from one dominance test to the next. It was important to study a group of monkeys in which the dominance relationships were labile enough so that there was a possibility for dominance changes to occur. It would be relatively easy to select a group of monkeys from the colony for whom the dominance relationships were invariant, i.e., the reliability of dominance would be 1.0. If, however, one applied an independent variable in such a group and found no change in the dominance hierarchy, very little information about the variable would have been gained because the measure was so insensitive.

The sociogram (Figure 1) clearly demonstrated that dominance relationships in the group were not a straight line hierarchy. Animals 52, 57, and 61 formed a circular group as did 60, 58, and 53. The three top-ranking animals formed a sub-group of dominance which appeared to be quite removed from the remaining seven animals. The pairing 54 and 56 was extremely competitive and very evenly matched although dominant behavior was usually established by bluffing rather than actual combat. When fighting did occur between these animals it was unusually severe and usually ended with one of the animals withdrawing from competition for the remainder of the test.

As indicated in Table 1, the dominance relationship, as determined by the raisin test, has a high degree of stability. It was found that of the 45 pairings, 20 of the pairings had an invariant dominance relationship throughout the six tests, 15 pairings had only one reversal in dominance, four pairs had two reversals in the six tests, and in two pairs each individual had dominated during half the tests. The remarkable aspect is that the dominance pattern was found to be highly stable even though no attempt was made to achieve maximum stability. For example, the stability could have been enhanced by maintaining a constant interval between successive tests; by shortening the intervals between tests; by using an all male group to rule out sexual factors, etc.

There were interesting individual differences in dominance expression. Animal 59 was a relatively large, "mean-looking" animal that was apparently non-competitive. All of the other animals appeared to be very wary of him and at the slightest indication that he was moving toward the food tray they invariably withdrew to the rear of the cage. He was seldom mounted and was attacked only one time during the dominance series. This monkey customarily sat quietly in the rear of the cage, his only interest being in mount-

ing his competitor occasionally. It was our impression that with an increased motivation and interest in the food this animal could have assumed a relatively high dominance status within the group.

Animal 53 was a highly competitive monkey although he was submissive to most animals in the group. He frequently attacked other animals from behind while they were reaching for food on the tray but seldom attacked if the other animal was in a defensible position facing him. Although he initiated many fights, he was usually worsted by the competitor.

One behavior that was noted frequently was a defensive maneuver which we have descriptively labeled "scapegoating." On one wall of the box was mounted an old one-way vision mirror which had long since turned dark and ineffective. Most animals made a thorough examination of the mirror when first placed in the box and thenceforth tended to ignore it. On many occasions, however, when a submissive animal was being attacked by a dominant competitor, the former would very shrilly make mock attacks on the image in the mirror in what appeared to be an obvious attempt to divert the dominant animal's attention away from him. Usually, the dominant monkey responded by examining the mirror and watching the noisy attack by the "scapegoater" closely. Those animals that most frequently used this technique with more dominant animals never responded to the mirror in pairings with submissive animals. A closer observation of this behavior will be made in future dominance series.

F. SUMMARY

The dominance relationships within a group of 10 young rhesus monkeys were determined on six occasions during a period of fifteen months. The dominance hierarchy was found to be quite reliable throughout the repeated series of determinations. Some considerations in the use of dominance relationships as a dependent variable were discussed.

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A SHORTENED "BASIC ENGLISH" VERSION (FORM C) OF THE 16 PF QUESTIONNAIRE*

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A. HOW REALISTIC IS THE GOAL OF SHORTENED TESTS?

To be realistic about the unrealistic attitudes of test-users, one must admit the existence of a widespread demand that any test shall be both extremely short and extremely reliable! Now Forms *A* and *B* of the Sixteen Personality Factor Questionnaire (8) have 10 and 13 items per factor, and reach a mean coefficient of equivalence, i.e., mean for the typical factor, of 0.51, and a mean split-half consistency coefficient (corrected to the full 20 or 26 items) of 0.69. But this tolerable reliability requires about three minutes per factor or three-quarters of an hour of test time per form, i.e., an hour and a half for the full length test, or even longer with slower readers.

From the standpoint of information theory an hour and a half is not much to ask for 16 independent and reliability-checked "bits" of psychological information. The ordinary intelligence test, after all, usually takes an hour to give data on only one of these factors. But the harassed industrial psychologist—and, alas, sometimes also the clinician—are apt to protest that this is more time than they can give. Probably they should turn to their administrative masters and point out that nothing very valid or reliable is likely to be found out about so complex a matter as individual personality by going through a ritual of inadequate testing. The hour "saved" by substituting a futile test for a longer, well-designed one may cost—as in an instance known to the writer—ten thousand dollars—for this can easily be the difference over a year or two between the production under a poor and a well selected executive.

Let us face the fact that the demand of the applied psychologist both to eat his cake and have it, usually results decidedly in his not having it. He goes through the motions of administering psychological tests and has to be satisfied with a pretty set of figures—apparent measurements. Very rarely can he demonstrate the real control of the situation that would result if test theory and practice were taken seriously. To give effective prediction, a test

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should cover the chief independent dimensions of personality, of which at least 16 to 20 are now measurable (15) and should reach a minimum reliability of 0.5 on these. If a test *must* be short, say, 100 items instead of the 354 items on the combined *A* and *B* forms of the 16 PF, then *it is better to sacrifice reliability rather than to give up an efficiently wide and even sampling of the principal dimensions of personality*—as information theory clearly shows (13).

It would admittedly be a fine thing if the measurement of 16 to 20 factors by questionnaire could be cut down to 100 items, i.e., roughly 6 per factor, without seriously lowering the reliability and validity of the factor measures. There are some inherent difficulties, but presumably it could be achieved if enough research were done to select the *right* six items. The history of research certainly shows that such short measures can be made effective on specific attitudes and interests; but a broad personality dimension is not a specific attitude. By its very nature it has to be sampled *broadly*, and therefore by using items each of which has an appreciable undesired specific in it. Or, in other words, there is sufficient tendency for the source trait to have individual peculiarities of manifestation to make it necessary to avoid depending on the average of a very few, specific items. In short, there *are* intrinsic difficulties which make it unlikely that research will find the ideal, highly saturated items. The chief of these is that they probably do not exist! But although real brevity may not be even *theoretically* obtainable with well nigh perfect reliability and validity, yet a practicable level of validity and reliability may reasonably be sought.

B. THE "PACKAGING" PLAN FOR ECONOMICAL FACTORIZATION

The above may seem a strange preamble to a research report intent on the development of a short test! But our point is that one must undertake such an enterprise open-eyed to the fact that he is preparing a test of lesser validity and reliability than the full length test. He is maintaining the sense of proportion that it is better to sacrifice items per factor than to sacrifice factors.

Since the demand for a shortened form of the 16 PF has been great, we decided, in fact, to aim at a third, *C* Form, of the test drastically cut down to 100 items, and requiring only 20 minutes for its administration. The situations in which a shorter form is requested tend to coincide with those in which a lower level of literacy is to be expected and we decided accordingly to make the *C* Form differ from the *A* and *B* forms both by being shorter and also by making minimal demands on education and vocabulary.

In addition, the questions themselves were made briefer than those in previous use, thus saving testing time in a different way. In view of the growing use of the translated 16 PF in eight countries, and the larger pool of research reference which that makes possible, the additional aim was taken of choosing culture-common, more reliably translatable items than formerly.

The initial step, therefore, was that of making a sufficient pool of psychologically suitable items, meeting the above specifications. The psychological guidance in making up the items came from the whole system of research on the nature and meaning of personality factors available in the past decade (1, 2, 3, 4, 6, 9, 10, 15). That is to say, items were made up for each of the known personality factors in behavior ratings and in questionnaire material, care being taken to seek relatively "pure" representations of each factor in behavior. Various members of the laboratory, with specific knowledge of the processes in particular factors participated, and a list of 450 items was produced. This was given to an initial, small population of 80 young adults (mixed students and airmen) simply to eliminate items on which any ambiguity of meaning was reported, or on which either the yes or the no responses constituted less than 10 per cent of all responses. The resulting list of 300 items we shall call the Extension Questionnaire No. 1 (to distinguish from Extension No. 2, described elsewhere).

Now it was the intention of our design to found the *C* Form upon an independent factorization, not merely to build it up by the cheap but doubtful process of setting up the factor meanings by extending the factor determinations of the existing *A* and *B* forms. To pick items for the corresponding *C* form factors entirely on their correlation with existing *A* and *B* factors would take little time and would give the appearance of good agreement among the forms, but would in fact perpetuate any distortions, specificities, or defects of rotation in the existing *A* and *B* factors.

On the other hand, to factorize as many as 300 items "from scratch" presents an almost insuperable undertaking, so we adopted the following abbreviating devices. First we correlated the Extension items with the existing questionnaire factors, representing each factor twice (by its *A* and *B* forms separately) for greater reliability of evidence. The intelligence factor was of course omitted, since items for it can readily be obtained from other sources. From inspection of the resulting 30×300 correlation matrix we attempted to pick up extension items having substantial correlations with the existing factors.

The second step in the design called for factor analyzing the items thus shown to have appreciable relevance to the 16 PF personality space, along

with the *A* and *B* forms of the original test. *This would both structure the new items independently and provide checks and corrections on the factor structure of the original 16 PF factorization.* Choosing Extensions items which had appreciable projection on the factor space of the 16 PF guaranteed items with real relevance to the principal known dimension of personality without precluding the appearance of new dimensions, since fresh factor analysis of these items would reveal whatever existed.

In this factor analysis it was proposed to use the economy of a new device which may be called "packaging," in which items are first factorized in small blocks or packages, and the packages are then undone for a separate calculation of the factor loadings of the individual items, as described in the following section.

C. OUTCOME OF THE FACTOR ANALYSIS

Inspection of the 30×300 matrix revealed that greater success had been achieved in making up new items for some factors than for others, presumably due to better insight into the nature of these source traits. Consequently, since we wished eventually to have as many new items for one factor of the *C* Form as for any other, namely 6, it was necessary to accept different levels of "goodness" for different factors. Thus, the goal was accepted of bringing in nine new items for each factor, on the assumption that a third of these would be lost in meeting the standards of the subsequent factorization.

The mean *r*'s with the factor, for these nine items imported for each from the Extension Questionnaire, ranged from .21 in the case of Factor *Q*₂, through .36 for Factor *E*, to .64 for Factor *C*. But in all cases they were significant beyond the 1 per cent level for the population of 295 used at this stage of the research. We are especially indebted to Dr. G. M. Guthrie, of the University of Pennsylvania, for supplying us, in the course of his own researches with the 16 PF, with adequate mixed undergraduate populations for this study.

The 126 Selected Extension items thus obtained (there proved to be no significant new items for Factor *Q*₁ and only enough for one new package on *N*) were now "packaged" for the economized factorization by grouping the nine items available for each factor in three groups of three. It was assumed that the degree of homogeneity obtained by picking these nine items for significant, consistent correlation with the existing *A* and *B* form factors, and for absence of significant correlation with other factors, justified the hope that a package would behave in a fairly unitary fashion, i.e., that items

would not mutually cancel loadings and that the package, treated as a single variable, would be likely to have decided loading on one factor.

Our hypothesis at this point could be stated by saying that using these packages as single variables, along with packages constituted by the existing *A* and *B* forms of the factor, should yield five variables significantly loaded on each of 15 factors. Thus for a given Factor *X* we should expect to find five significantly loaded variables, viz: *XA*, *XB*, *Xa*, *Xb*, and *Xc*, the two first being the present *A* and *B* forms and the three last the scores on each of the three packages of three items. All but these five variables (the rest being 67 in number) should, with respect to any one factor, fall in or near the hyperplane, thus offering a very firm basis for a good simple structure determination.

The correlation matrix for the above 70 variables was based on a population of 295 men and women undergraduate students and was worked out in terms of the coefficient ϕ/ϕ maximum, which has been shown to be less prone to develop spurious "eccentricity factors" (5) than other indices, and which is susceptible to rapid I.B.M. computing. Thirteen factors were taken out of this matrix by the multiple group method (5), carried to four iterations of communalities. Two more were then taken out of the residuals, still significant, by the centroid method, which permits a better determination of the end of extraction and in this case indicated that the fourteenth or fifteenth factor was the last needing extraction.

Rotation for simple structure was carried out blindly, as usual, cryptic numbers being substituted for the above *XA*, *XB*, *Xa*, *Xb*, and *Xc* symbols. A good structure was relatively rapidly obtained, and after 11 over-all rotations the hyperplane frequencies reached a firm plateau. The rotated factor matrix is set out in Table 1 and the angles among the reference vectors in the form of cosines in Table 2. The unrotated matrix and the transformation matrix are on file at the A.D.I. Auxiliary Publications Project Library of Congress and may be obtained by reference to Nos. ——. It will be observed from Table 2 that there are some slight but definite correlations among the factors. Since the definiteness of the simple structure is the best the experimenters have seen in a dozen preceding studies, it is probable that these obliquenesses do not represent any indeterminateness of the hyperplanes but express real correlations among the personality factors.

TABLE 1
ROTATED REFERENCE VECTOR MATRIX
16 PF—Form C

Variables*	Factors ²															
	A	E	C	F	G	I	L	M	N	Q ₁	Q ₃	H	Q ₄	O	Q ₂	
AA	53	-04	09	01	05	-05	-01	06	-03	16	-04	-01	09	01	-24	55
AB	66	-07	05	02	-12	01	-06	05	13	-13	02	-15	-08	07	-07	70
Aa	-03	17	-03	-23	03	-05	-10	02	-02	15	-09	-04	02	-07	-25	20
Ab	45	10	-10	-32	-01	09	08	-09	-04	07	02	08	-22	-06	-01	41
Ac	11	03	04	-06	-11	-03	02	-07	-07	-13	09	10	-15	00	-05	11
CA	-12	-05	37	08	-01	01	-03	23	07	03	-00	-13	-08	-12	-06	35
CB	10	04	44	-02	-03	-04	09	06	-03	06	-09	-05	-15	-07	06	35
Ca	-01	06	25	01	-21	11	00	-03	02	-04	04	35	-16	-05	-03	34
Cb	05	13	51	05	07	-01	-07	01	-12	-03	01	-34	04	08	05	55
Cc	-07	-19	02	-02	-04	-04	-23	27	10	03	-09	05	-10	04	-03	24
EA	-03	23	09	06	-01	-05	10	-06	-03	21	05	-05	05	-00	05	24
EB	08	27	-07	08	01	-10	-02	04	-00	-04	-13	-07	-11	-01	-06	25
Ea	-05	+1	-11	-02	-06	09	-09	-06	23	-16	-07	07	-03	05	-14	43
Eb	-05	36	05	01	03	13	06	12	-01	-05	-07	07	08	-04	02	26
Ec	-06	17	17	-05	-09	-13	02	02	02	08	00	07	07	-07	09	20
FA	-01	-07	01	44	-05	-01	03	-06	09	02	-10	22	06	11	-02	33
FB	04	01	-05	61	-02	02	-19	04	-12	-08	-08	-07	-09	-03	-09	66
Fa	-16	-05	-06	34	05	08	09	06	03	-12	10	20	19	03	03	24
Fb	10	-04	-16	01	-11	-02	06	08	03	-01	-05	14	-05	00	-08	11
Fc	02	08	-06	33	15	10	07	-11	01	05	-12	-15	-05	08	06	30
GA	04	15	-03	-13	+6	10	-01	02	03	03	27	-05	-00	-03	-00	35
GB	-01	-04	00	05	35	-12	06	04	01	01	09	+0	-11	-01	05	40
Ga	09	-30	-26	12	06	-06	23	-00	01	03	-02	-21	12	-15	-10	44
Gb	03	-05	08	10	+6	-02	-07	-05	04	02	-02	10	02	05	06	32
Gc	-15	21	14	03	24	06	09	-03	-13	-08	-01	-11	-01	-07	-15	28
HA	13	-02	-01	42	-01	01	-01	09	-01	12	02	58	-15	08	04	60
HB	17	10	09	38	10	05	05	15	03	05	27	+1	-14	05	02	51
Ha	04	-07	05	25	-07	05	-12	-10	08	-06	05	38	-06	01	-16	31
Hb	07	-08	12	25	03	-02	-07	33	06	12	04	26	03	12	-11	31
Hc	05	02	16	24	02	00	01	00	23	-21	05	34	04	07	-09	33
LA	10	05	-24	-05	03	50	19	00	01	12	-05	10	-26	16	05	67
IB	01	05	05	12	-03	+1	00	-08	-05	10	09	+4	15	10	02	50
la	15	04	-02	-10	-01	16	06	02	14	-08	13	-31	19	-02	06	27
lb	-01	11	-09	-08	-11	42	-05	03	07	-07	01	03	-03	02	-06	32
lc	05	-06	-09	03	04	32	-03	01	-04	00	-04	21	-03	-03	14	33
LA	-03	04	-21	07	09	-04	20	06	-05	08	-05	-10	13	11	12	30
LB	-03	03	-08	-08	-02	07	63	-07	-01	08	08	43	02	-07	11	70
La	09	02	-14	-16	08	-03	-02	09	-03	08	-03	-14	25	-09	-17	25
Lb	-02	-03	-40	-01	03	-04	32	05	-03	04	-10	06	14	-05	09	22

TABLE 1 (continued)

Variables*	Factors ²																	
	A	E	C	F	G	I	L	M	N	Q ₁	Q ₃	H	Q ₄	O	Q ₂			
Lc	03	12	-11	-11	-04	-00	37	-08	-01	-06	-09	-02	12	-13	-04	33		
MA	-04	-07	-37	10	-15	06	-06	15	-02	-06	-03	06	18	07	-09	38		
MB	-04	-07	-16	-05	-10	22	10	33	04	06	17	-01	-08	-15	01	33		
Ma	-04	-18	-11	04	04	07	01	16	13	10	-01	-14	16	07	08	18		
Mb	-06	11	02	-03	-03	08	02	10	06	-02	-04	-04	-16	02	-13	07		
Mc	02	06	-29	-02	-08	-03	01	36	-05	-35	04	-05	-02	-01	04	34		
NA	-08	08	09	05	01	-11	05	-03	38	15	12	-08	-02	-09	09	39		
NB	10	-02	-01	09	04	-05	-07	-07	09	09	-12	07	-24	02	-08	19		
Na	01	-05	-14	-02	-06	07	-07	-19	+8	04	04	09	06	-01	06	43		
OA	03	-05	-17	-06	-01	03	-04	07	-07	-03	-14	-11	52	10	-03	55		
OB	07	-12	-07	-14	-06	03	08	-08	03	09	-09	-03	51	09	04	55		
Oa	-10	02	00	-04	-17	02	04	08	-09	-11	-28	-13	19	08	03	26		
Ob	-00	-03	-21	-06	10	10	08	10	04	08	-14	-04	28	02	-02	35		
Oc	-03	04	-01	-11	03	25	05	-02	10	04	03	-23	23	-01	02	24		
Q ₁ A	02	-15	19	04	17	-03	10	05	12	-07	-11	02	03	05	-23	32		
Q ₁ B	-10	-04	-01	01	04	05	-07	-05	03	41	08	07	05	05	04	23		
Q ₂ A	-12	04	06	-14	06	04	-01	-00	09	14	-00	-13	11	02	38	33		
Q ₂ B	-17	11	-07	-18	-02	04	-11	26	-05	-04	-09	11	-04	01	15	34		
Q ₂ a	-03	-00	-04	-18	-01	02	-09	-01	01	31	-13	-12	00	-05	22	34		
Q ₂ b	-10	14	02	-03	-05	07	06	-08	-08	-13	-06	16	-08	03	40	36		
Q ₂ c	-11	-10	-09	08	-06	26	-06	-09	-15	17	02	03	-08	-12	19	25		
Q ₃ A	01	-08	-02	-07	04	-12	-04	-08	06	05	26	-05	-12	-10	-03	45		
Q ₃ B	-08	02	04	06	06	03	04	10	06	02	49	00	-15	-07	07	35		
Q ₃ a	-12	-19	-11	06	-02	-01	-11	-01	01	12	34	33	-25	07	-01	45		
Q ₃ b	02	-08	-04	06	-04	-12	-06	-00	-10	-18	40	06	-18	-04	-15	45		
Q ₃ c	09	08	18	-05	-00	07	08	-09	08	00	34	07	-27	-12	01	36		
Q ₄ A	04	-04	-14	-01	03	-09	01	02	02	04	-05	-08	56	07	-03	53		
Q ₄ B	-05	-06	-31	-07	-18	-02	01	-10	-09	00	-04	03	34	5	-02	48		
Q ₄ a	-07	-07	-22	-04	-02	04	21	-03	23	07	-31	-10	04	05	-10	42		
Q ₄ b	-11	-13	-10	10	-00	-06	23	21	07	05	-01	-34	24	-02	-03	47		
Q ₄ c	-03	-14	-19	-01	20	-03	03	27	34	17	-10	-07	35	04	-05	56		
Numbers in ± Hyper- plane	55	48	40	49	55	55	57	56	56	48	51	39	33	60	52			

*The actual items corresponding to the variables Aa, Ab, Ac, etc., are shown in Table 3 below. The h^2 values are of course taken from the unrotated factor matrix.

D. THE FACTOR CORRELATIONS OF UNPACKAGED ITEMS

The re-factorization of the 16 PF has thus confirmed all but one of the original factors and the new material has structured itself within the same factors. The exception is Factor *O*, which has largely run into *Q*₄. An entirely independent rotation, using the mechanical solution of the Quartimax method (20) agreed in all essentials with that given in Table 1, but

TABLE 2
COSINE MATRIX: ANGLES AMONG REFERENCE VECTORS

Factor	Factors														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2	—01														
3	—05	26													
4	—20	—25	—00												
5	04	20	03	08											
6	—32	35	07	15	09										
7	02	—00	08	—03	—05	10									
8	—08	—15	04	08	01	—10	—01								
9	—06	01	09	—09	09	16	—03	11							
10	—24	—01	16	03	19	27	09	—27	—05						
11	07	03	—16	17	06	19	08	05	10	03					
12	02	—13	—01	27	—03	—12	—00	10	—11	—06	05				
13	—01	—03	31	11	19	—14	—16	20	—01	06	04	05			
14	—15	07	09	10	00	03	—22	01	15	05	—11	08	17		
15	22	—23	—08	12	17	—25	06	—15	—13	—13	08	07	06	—16	

suggested that the mixed Factor 13 is more *Q*₄ than *O*, so it is here considered *Q*₄ and Factor 14 is labelled *O*. The latter has poor loadings on the old *O*, though collectively better than on any other factor. The new *O*, which may therefore be somewhat different from the old, will have to be built up either by a special experiment searching for new *O* items or by special care in estimating the present factor despite its absence of substantial loadings.

Otherwise most "markers" fall exactly in the factors hypothesized, though there is some weakness in *Q*₁ in relation to *Q*₂ and some secondary loadings of markers for one factor in another in *C*, *F*, and *H* (the two last have been notoriously resistant to clean separation). It is important that no extra, unsuspected factors have appeared, and since this is not entirely precluded by our method of choice of variables, it supports the argument that the method of ensuring comprehensiveness of representation in the original study (3) was adequate.

According to the "packaging" design it now remained only to undo the packages and correlate their contents with the above factors. That is to say,

the estimate of each of the 15 factors was now correlated with the 26 (or 20) separate items in the *A* and *B* forms and the nine new items in the three packages, for that factor, making typically 35 correlations to be obtained with each of 15 factors. It will be seen that in this way we obtain the loading (or correlation) of each individual *item* that is likely to have any significant correlation with a factor, without the enormous labor of factoring the original 300-item Extension Questionnaire (plus the 354 items of the existing *A* and *B* forms!). Some information is lost, but none that we cannot afford to lose, while the danger of including an item in Factor X that has also a substantial loading in Factor Y is guarded against to some extent by the original 30×300 matrix and by declining to accept a package of three with a substantial loading in another factor. In the present case we watched the latter by including in the unpackaged individual items correlated with a factor not only the expected "marker packages" but any other with a significant loading. Thus all factors were correlated with at least 35 items but several, e.g., Q_2 with as many as 55.

The estimation of factors to obtain these correlations needed to be an unusually exact one, especially if we were to get anything out of Factor *O*, which is unquestionably an independent dimension, though poorly represented in variables. Consequently, the usual procedure of adding scores on the salient variables, even on weighted salient variables, did not seem good enough. Accordingly we followed the procedure of Thomson (19) which the writer has discussed in more detail elsewhere (11) in which each and every variable is made to contribute whatever it can toward stabilizing the factor estimate, i.e., it does not depend on salients only.

From the list of correlations of the factors with the individual variables, as shown arranged in their "package" groupings in Table 3, the six highest loaded items were to be picked out to represent each factor in the resultant *C* Form of the 16 PF. The items for the *A* and *B* forms, which also were correlated with the factor scores individually [partly for revision of the 16 PF Forms *A* and *B* (7)], are not set out here since they are known through the key in the Handbook (8). In Table 3 the index numbers of items are those of the original 300-item questionnaire and the responses set out are those to which a positive score was assigned. At the end are set out certain items borrowed from the *A* and *B* forms for the *C* Form [to be replaced in the revision of the former (7)]. This was necessary because, as shown in the following section, conditions of final construction did not always permit taking simply the six highest loaded items for the extension.

To avoid an additional table the loadings of the items in the factors for

which they were eventually used are entered on the right of Table 3 (no values are entered for those items too poorly loaded to have any specific factor affiliation in any factor). A formal listing of items attached to factors, arranged *under* factors, as derived from this table, is given in the Handbook for Form C (12).

E. SELECTIONS OF ITEMS AND LOADINGS FOR TEST CONSTRUCTION

The usual precautions in itemized test construction had next to be observed, namely, the avoidance of items substantially loaded in other factors than that desired (or the balancing of such loadings), the distribution of available good loadings equally among factors, the choice of as many "yes" [or (a)] as "no" [or (b)] alternatives in contributing to each factor score, the avoidance of obviously similar specific content, the selection of briefer questions among those otherwise equally eligible, etc. Furthermore, to give due weight to cross-validation in different population samples we adhered, when present weightings were about equal, to the item that had previously belonged in that factor (where *A* and *B* items were concerned). As indicated above, this produced slight changes from the simple choice of the six highest loaded items in each factor. It permitted us to use 70 of the 126 Extension items (Table 3) (which, it will be recalled, were already selected for *some* correlation with the factors) and these were brought up to the required number by borrowing 20 more from the *A* and *B* forms, as shown.

The 90 chosen items, consisting of 6 per factor, were now arranged in cyclical order for the final *C* Form questionnaire. Eight items for the sixteenth, "built-on" factor, *B*, general intelligence, were added, and these were chosen from a larger number (*a*) on the empirical basis of correct degree of difficulty and good correlation with the pool, in a group of 110 average adults, (*b*) to represent, about equally, classifications, analogies, synonyms, opposites, and problems (2 of each, except analogies and synonyms).

F. ADDITION OF MOTIVATIONAL DISTORTION SCALE

Since this questionnaire is intended for use in strongly motivated practical situations there remained to develop what we shall call a Motivational Distortion or "M.D." measure. No space exists here to survey the techniques of "lie scales" and suppressor variables, on the theory of which there exists much disagreement (16, 17). Briefly, we recognize distortion in questionnaire responses from the following sources: (*a*) the intention to present a favorable self picture in seeking a strongly desired job. This will differ from job to job, but may have a core of commonly distorted items. In a few

TABLE 3

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
Aa	192	Would you like a job which required you to sit at a desk all day?			
	206	Whom do you dislike more? a. Dishonest people. b. People who put on an affected "superior" attitude.			
	288	When you are introduced to someone would you rather? a. Have a friendly argument on basic social issues. b. Have him tell you a few jokes.	(a)	Q ₁	.25
Ab	100	Which would you rather be? a. A teacher. b. A policeman.			
	123	Do you believe that divorce should generally be made easier?			
	219	Would you like a job where you listen all day to complaints from employees or customers?	Yes	A	.33
Ac	257	Do you give yourself so much to do that you often have to drop one job to start another, and never quite catch up?			
	240	Are you attentive in keeping appointments, and keeping them on time?	Yes	A	.39
	108	Do you think that society ought to pay more attention to scientific thinking about its problems?			
Ca	151	Do you complain about bad service even sometimes when it is really satisfactory?			
	163	Have you ever come near fainting at a sudden pain or at the sight of blood?	Yes	G	.33
	285	Do you sometimes get so angry you are speechless?	No	H	.38
Cb	54	When you see "sloppy," untidy people do you a. Accept it? b. Feel disgusted and annoyed?	(a)	C	.30
	99	Have you ever walked or talked in your sleep?			
	179	Do you feel critical of most other people's work?	No	C	.49
Cc	14	Do you have more trouble than most people in changing your habits?			
	43	As a child, did you feel reluctant to leave home and go to school each day?	No	M	.26
	221	Do you think that the shortcomings in your present position in life are due mainly to your own mistakes?			
Ea	159	Can you deliberately lie to a friend and keep a straight face?	Yes	E	.46
	273	Are you annoyed by people who put on airs of superiority?	No	E	.40

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
	276	What do you do if a remark you make is passed by?			
		a. Let it go.			
		b. Repeat it till people catch on.	(b)	N	.28
Eb	102	Do you enjoy making life easy for waiters and waitresses?	No	E	.34
	125	Whom would you rather have at your supper parties?			
		a. Good listeners.			
		b. Good talkers.			
	216	Would you feel embarrassed joining a nudist colony?	No	F	.36
Ec	119	Would you like to be a missionary?			
	142	How commonly do you find that you set yourself a job to do and then have to give it up because you are tired?			
		a. Everyday.			
		b. Never.			
	157	Do you believe in censorship of movies and magazines?			
Fa	118	Do you crave travel?	Yes	F	.36
	172	How often do you feel a real urge to hear some music?			
		a. Several times a day.			
		b. Only rarely.			
	270	At a party are you disinclined personally to start cracking jokes and telling stories?			
Fb	84	What is your reaction to public pressure?	No	F	.35
		a. It is wise to conform.			
		b. You will do what you like anyway.			
	165	Do you like to impress people with your social status?			
	233	Which is more important to you?			
		a. Religion.			
		b. Politics.			
Fc	61	Are you ever so bored that you crave excitement?			
	153	Do you find it difficult to complain if your working conditions are poor?	No	F	.36
	203	Is there more than one correct way to worship?			
Ga	113	Does it worry you to be in the company of solemn, severe-looking, over-critical people?			
	154	Do you think every story ought to have a moral?			
	266	If you find yourself with time between jobs, do you	No)	.22
		a. Fill it chatting with people or playing cards?			

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
Gb	91	b. Plan carefully to have some other work available at that time?	(b)	G	.33
		Do you think			
	300	a. Some jobs don't need to be done as carefully as others?			
		b. Any job should be done thoroughly, if you do it at all?	(b)	G	.48
Gc	18	Do you admire a clever but undependable man more than an average man with will power to resist temptation?	No	G	.36
		If you had more than enough income for your daily needs, do you think you should give most of the rest to your church or some good cause?	Yes	G	.32
	85	Do you think people should observe the moral laws more strictly?	Yes	G	.40
Ha	67	Are you slow at making friendships with people?	No	H	.32
	134	When too many tasks pile up on you, waiting to be done, do you have a hopeless feeling of being overwhelmed?			
	176	When you walk down the street do you sometimes resent the way people look at you?	No	H	.46
Hb	126	Which sort of spouse would you prefer? a. One who will command admiration. b. One who likes to read religious books.			
	235	Are you interested in the social problems of today?	Yes	H	.34
	283	Do you have fairly strong opinions on social questions when they come up for discussion?			
Hc	146	When you make a just complaint, do you ordinarily expect to receive satisfaction?	Yes	H	.37
	187	Are most of the people you know really glad to meet you at a party?	Yes	H	.32
	189	Do you have lots of energy for the work you do?			
Ia	116	Which would you rather be? a. A bishop. b. A colonel.	(a)	I	.68
	129	Do you think that much modern so-called "Progressive" education is less sound than the old common-sense idea of "spare the rod and spoil the child"?	Yes	O	.25
	283	Do you have fairly strong opinions on social questions when they come up for discussion?			

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
Ib	58	Which do you prefer to read? a. A really long novel, or other book. b. Short essays, short stories and reviews of news, etc.			
	183	Would you rather be a. An engineer? b. A teacher of social science?	(b)	I	.42
	299	Are you an emotional person?			
Ic	89	Which would you rather exercise by a. Fencing and dancing? b. Boxing and baseball?	(a)	I	.35
	248	Do you think that what people try to say in poetry could be put just as easily in plain English?	No	I	.38
	282	Which would you rather spend an hour discussing? a. Recent essays on social progress. b. Ways of increasing one's income.			
	192	Would you like a job which required you to sit at a desk all day?			
La	260	Do you think that witnesses generally tell the truth if it costs them a lot of embarrassment?	No	L	.37
	261	When you are going to catch a train do you generally get hurried, tense, and anxious, though you know you have enough time?	Yes	Q ₄	.36
	210	Do you suspect that people who seem friendly to you are sometimes disloyal to you behind your back?	Yes	L	.31
Lb	244	Do you smile to yourself at the big differences between what people do and what they say they do?	Yes	L	.30
	255	Do people think that you are cynical?			
	147	Do you think foreign countries are actually more friendly to us than we suppose?	No	L	.35
Lc	160	Which is usually stronger in you? a. Hunger for food. b. Hunger for amorous affection.			
	246	If a neighbor keeps cheating you over small things, do you feel it is better to humor him than show him up?	No	L	.37
	130	How many of your neighbors do you find boring and tedious to talk to? a. A majority. b. Practically none.	(a)	M	.29
Ma	161	Are you happy to be waited on by personal servants?	Yes	E	.47
	265	Are there occasions when you want simply to be by yourself, away from other people?	Yes	M	.33

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
Mb	96	Do you think that even the most powerful experiences during the year still leave your personality largely the same?	No	M	.29
	167	Are you inclined to be as considerate as possible of other people's feelings?			
	211	Do you tend to react more effectively when you are fresh than when you are somewhat tired?			
Mc	2	Do you ever have difficulty in keeping up with a conversation because the subject changes too fast?			
	141	Do you find it helpful to pace up and down when you think?	Yes	M	.41
	178	Which do you think people should do when they are in love? a. Marry regardless of differences of social class and background. b. Consider that such differences may ruin their companionship.			
Na	259	If there is a propagandist slant hidden in something you are reading are you apt to pass it over unless someone calls attention to it?	No	N	.34
	278	Which do you think the country would be better to spend more on? a. Armaments. b. Education.	(a)	N	.37
	287	Do you talk slowly?	No	N	.31
Oa	222	Do you find it easy to recognize familiar faces in a crowd?			
	264	Do you have almost uncontrollable fears or distastes for some things, e.g., an animal, a particular place, etc.?	Yes	O	.20
	272	Which do you do in relation to your week-to-week personal expenditures? a. Keep some sort of account. b. Never know what you have spent for sure.			
Ob	115	Do you find yourself with quite strong emotional moods, e.g., anxiety, laughter, misery, etc., which you cannot account for by anything that has recently happened?	Yes	Q ₄	.60
	145	If you are left in a house absolutely alone for some time do you tend to get anxious and fearful?	Yes	Q ₄	.46
	277	Do you have unexpected lapses of memory?			
Oc	62	Are you brought near to tears by discouraging circumstances?	Yes	I	.43
	164	Do you like to have responsibility?	No	I	.44
	207	Do you have good physical endurance?			

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
Q2a	262	If you could, which would you rather play? a. Chess b. Bowling.	(a)	Q ₁	.34
	267	Are you sometimes afraid of your own ideas because they are so unreal?	No	Q ₂	.21
	271	How have you learned more in school? a. By going to class. b. By reading a textbook.	(b)	Q ₁	.29
	72	When you promise to do something yourself, do you take pride in doing it alone and never getting outside help?	Yes	Q ₂	.22
	256	Could you stand living alone, far from anyone else like a hermit?	No	A	.48
Q2b	281	Do you care what other people think of you?			
	114	In a group would you rather be the man who a. Solves technical problems? b. Keeps the records and sees that rules are kept?	(a)	Q ₁	.20
	176	If you wanted to vote on some social issue would you read a. A recent novel concentrating on that issue? b. A textbook giving statistical facts, etc.?	(b)	Q ₂	.22
	197	Which would you rather have? a. More brains. b. Finer physique.			
	177	Do most people act as if they hate to see you coming?	No	Q ₃	.57
Q3a	236	Which do you believe in more strongly? a. Insurance. b. Personal luck.	(a)	Q ₃	.72
	279	When a problem proven to be too hard, do you try a. A different problem? b. Another approach to the same problem?	(b)	Q ₃	.60
	150	Do you think that there are more nice people than fools in the world?	Yes	Q ₂	.31
	238	Are you more energetic than most people at getting your work done?	Yes	Q ₃	.61
	269	Do you ever make a promise you know you won't be able to keep?			
Q3c	80	Do you wonder whether many people have a rather poor opinion of you?			

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
	94	Do you generally persist in your work even in the face of pleasant distractions?			
	231	When, in your opinion, someone shows bad manners do you			
		a. Say nothing, because you are probably being "fussy"?			
		b. Let them see clearly what you think?	(b)	O	.20
Q4a	121	Do you refuse to spend time thinking about "what might have been"?	Yes	N	.59
	239	Do you have quite fantastic, impossible dreams at night?	No	Q ₃	.48
Q4b	128	Can you depend on your memory not to let you down?	No	Q ₄	.58
	212	Does it require a particularly great amount of self-control for you <i>not</i> to do certain things?	Yes	L	.33
	268	Do you refuse to forgive people readily for insulting or unfair remarks?			
Q4c	195	Are your mood changes noticeable to others?			
	214	Do you sometimes get exasperated with small rules and regulations, which in calmer moments, you approve of?	Yes	N	.35
	215	When you talk, do you ever find that you have said something without consciously realizing it?			
<i>Items Modified from A and B Forms</i>					
		In a factory would you rather be in charge of?			
		a. Mechanical matters.			
		b. Talking to and hiring new people.	(b)	A	.57
		Would you rather be			
		a. In a business office, organizing people?			
		b. An architect, drawings plans of buildings?	(a)	A	.53
		Do you feel energetic when you most need to be?	Yes	C	.68
		Is your health uncertain, forcing you frequently to change your plans?	No	C	.60
		Are you slow in saying what you want to say, compared with other people?	No	A	.37
		Are you a sound sleeper?	Yes	C	.56
		Do you get impatient to the point of fury when someone delays you?	No	C	.32
		Have people called you a fraud, stuck-up, self-willed person?	Yes	E	.37
		Do you like large parties?	Yes	F	.50
		Do you feel awkward in company?	No	F	.47
		Have you ever been active organizing a club?	Yes	F	.43

TABLE 3 (continued)

Package symbol	No. in Ext. Ques.		Factor affiliation and loading		
		Would you rather see			
		a. A good historical movie?			
		b. An inspiring and clever view of future society?	(b)	M	.34
		Would you rather spend an evening			
		a. At a hard game of cards?			
		b. Looking at photos of past vacations?	(b)	O	.30
		Do you find that you need to avoid excitement because it wears you out?	Yes	O	.62
		In your job does more trouble arise from men who			
		a. Are constantly meddling with what is O.K.?			
		b. Refuse to employ up-to-date methods?	(b)	Q ₁	.22
		Do you think it is cruel to vaccinate small children?	No	Q ₂	.44
		Would you rather read			
		a. A good historical novel?			
		b. An essay by a scientist on harnessing world resources?	(b)	Q ₁	.30
		Do you try to avoid getting involved in a lot of social affairs and responsibilities?	Yes	Q ₂	.23
		Are you a person who can banish worry easily?	No	Q ₄	.69
		Are there times when you feel too grouchy to see anyone?			
		a. Very rarely.			
		b. Quite often.	(b)	Q ₄	.62

clinical cases it may actually be reversed, as in malingering, but this affects so minute a fraction of *C* Form users that we are not concerned with it. (b) The necessary degree of dishonesty which permits (a) to operate. (c) Lack of self-insight, a factor for which has been demonstrated by Saunders (18) though it remains to be seen how different this is from general lack of psychological insight (14). (d) Sheer lack of coöperation, i.e., a careless indifference to how the responses are made.

Now of these, (b) could be estimated from Factor *G* and (d) from internal inconsistencies in the items contributing to any factor, while (c) might well prove to be related to some factor already in the scale, such as *C*— or *I*+. However, the perspective of practicability required by a short scale suggested that we confine ourselves essentially to sources (a) and (b). Actually, (b), in the present situation, can be considered operationally a part of (a), while (c) is taken for granted in the factorization, wherein we validate the response patterns as "behavior" against factors of rated criterion behavior (1, 3, 4) and make no assumptions of insight.

Accordingly a further study was started to find seven M.D. items (bringing the total questionnaire to 105 items), and then to determine which of the factor scores, if any, would need correction in a strongly motivated situation. Twenty questions were made up of a kind which would lend themselves to distortion in a job-seeking situation, in that they are hard to check and easy for the subject also to fool himself upon, e.g., by referring to comparisons within himself. Assorted examples from the 20 are:

"Does your memory work better now than ever it did?"	"yes"
"Do you make a success of most jobs you undertake?"	"yes"
"Can you get lazy people to work without incurring their displeasure?"	"yes"
"When people criticize your work do you get an impulse to criticize them back?"	"no"

The 20 were presented, sandwiched among the 98, to a group of candidates for entry to the Air Force and to a group of students near graduation, totalling 60 subjects in all. In each case they did the whole test in a motivation-free, "research" atmosphere with apparent anonymity of score sheets, and secondly in a situation in which they signed the sheets and were told this was a serious test governing their entry to the Air Force or their job recommendation records in the Dean's office. They were *not* told to "fake" or to "make their personalities attractive," for this would be an artificial and different situation from that of normal job application.

Seven questions were selected according to (a) having the greatest shift from the unmotivated to motivated situation; (b) having the highest mean correlation of shift with shift on all the factors, double weight being given to ranking on (a) in combining (a) and (b). Actually there was no significant *mean* shift on 12 of the factors, but individual difference in shift correlated significantly with M.D. shift in five.

The seven effective M.D. items, arranged for approximately equal "yes" and "no" answers, are as follows, in declining order of total effectiveness.

- | | |
|---|-----|
| 1. Does your mind fail to work as well at some times as at others? | No |
| 2. Are you often bothered about what other people think of you? | No |
| 3. Are you generally more considerate of other people than they are of you? | Yes |
| 4. Do you try to deceive people by being friendly to them when you really dislike them? | No |
| 5. Do you always find it easy to admit when you are wrong? | Yes |

- | | |
|---|-----|
| 6. Have you, even for a moment, had hateful feelings toward your parents? | No |
| 7. When you know you are doing the right thing, do you always find it easy to do? | Yes |

Now the question of whether to correct for distortion on a factor according to (a) the regression of the total (final or motivated) M.D. score on the factor shift or (b) the regression of the *change* in M.D. score on the factor shift, is debatable. In any actual, practical, test situation all one has is the total M.D. scale score in the (more or less) motivated, "final" situation. One might get regression of final M.D. score on M.D. shift (which was substantial in this case) and regression of M.D. shift on factor shift. But, we decided to go directly from final, motivated score to "distortion" or change score on the factors, knowing that the seven items in the M.D. scale show substantial shift from indifferent to motivated situation, and that the final score must almost certainly correlate with a distortion shift on factors, if it exists. The exact correlations will need to be worked out in a variety of further groups and motivational situations, but in this experiment the correlations of total (motivational) M.D. scale with factor shift were as follows:

Factor A: $-.04$; Factor C: $.10$; Factor E: $.15$; Factor F: $.03$; Factor G: $-.01$; Factor H: $.27$; Factor I: $-.05$; Factor L: $-.15$; Factor M: $.02$; Factor N: $-.13$; Factor O: $-.06$; Factor Q₁: $-.14$; Factor Q₂: $-.28$; Factor Q₃: $-.05$; Factor Q₄: $-.10$.

With the standard error about $.13$ only two of the above need be considered in making corrections, namely H and Q₂(—). It is interesting that although the correlations are small they agree with psychological understanding of the factors. Thus H+, Uninhibitedness; Q₂(—), Social Conformity, and possibly E(—), Dominance are factors correlated with motivational distortion, while the "character" factors G, Super-Ego and Q₃, Will Control, are negligibly and negatively associated. Until more extended evidence is available it seems that no correction needs to be made on any factors but H and Q₂ and that these should be respectively lowered and raised by one quarter of the score on the M.D. scale—assuming the standard deviations on H, Q₂ and M.D. are approximately equal as in our data.

Although, in a questionnaire directed at maximum information from a hundred items, it may seem extravagant to give seven questions for correction on only two factors, we considered it desirable to incorporate the M.D. scale (cyclically distributed) in the final form. Further research may show some of the smaller correlations to be significant and there may be other

ways in which these unquestionably motivationally-distortion-sensitive items may be useful. The standardization and reliability data are set out elsewhere, since we are concerned here with validity and construction principles.

G. SUMMARY

1. A description has been given of the research and construction for developing a third (*C*) form of the Sixteen Personality Factor Questionnaire which shall be essentially 100 items and 20 minutes in length, in simple English and in situations readily translatable to other languages, and capable of yielding measures on the same 16 factors as in the *A* and *B* forms.

2. A new design, which may be called "package factoring," has been introduced in which (*a*) 450 carefully psychologically chosen Extension items were reduced to 300 by dropping eccentric cuts, etc., (*b*) the 300 remaining were reduced through a 30×300 matrix to 126 items shown to be well involved in the 16 PF factor space. (*c*) The residual 126 were factored with the original *A* and *B* form items in 75 packages (a 75×75 matrix) to provide an independent proof of factor structure and soundness of rotation, etc., of the original 15 factors. (*d*) The packages were undone and the items in the packages loaded in a given factor were correlated with an exact factor estimate (in a 15×40 , approximately, matrix). This design gives most of the results required from a complete 654×654 factorization and is thus a great saving.

3. Six items per factor could finally be obtained with loadings ranging from significance to high values. To these were added eight intelligence test items (for Factor *B*) and seven items to constitute a motivational distortion scale. The latter were specially designed items showing maximum change from unmotivated to motivated situations, and it was found that this scale needs to be used on two factors, *H* and $Q_2(-)$, and probably on *E* (Dominance).

The resulting 105-item test is in process of standardization and publication. The writers wish to express their indebtedness to Dr. G. M. Guthrie of Penn State University and Mr. Wylie of the University of Illinois.

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COLLEGE ENVIRONMENT, PERSONALITY, AND SOCIAL IDEOLOGY OF THREE ETHNIC GROUPS*

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A. INTRODUCTION

Since the publication of *The Authoritarian Personality* by Adorno *et al.*, the literature in Social Psychology has been replete with studies designed to explore the correlates of the authoritarian scales. This work has recently been summarized in a series of excellent critical reviews in the volume by Christie and Jahoda (2). In general the evidence indicates a high degree of reliability for the scales, but there has been little effort to validate the scales independently of the original hypotheses, as Sanford (6) has pointed out. Nor has there been much attempt to explore the effect of changes in the social environment on the cluster of traits referred to as authoritarianism or the prevalence of these traits in minority groups.

B. THE PROBLEM

Our purpose in carrying out this study was tentatively to explore the degree of authoritarianism as defined by the authors of *The Authoritarian Personality* (1) amongst Catholic, Jewish, and Protestant women college students. At the same time we were interested in the relationship between Authoritarianism and other personality variables as measured by the California Psychological Inventory (4) and subject self-descriptions in the Gough Adjective Check List (3) as well as the effects of three years in three different types of college community.

C. THE EXPERIMENT

As a measure of authoritarianism we went over the scales reported in the Berkeley study and took 55 items which adequately sampled the content of the authoritarian syndrome but eliminated all items which were judged to be offensively worded or which mentioned ethnic groups by name (see Table A). It was felt necessary to do this in order to get valid scores for the minority group members in our sample as well as to disguise the purpose of the scale to our rather sophisticated college seniors. The resulting scale

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TABLE A
THE COMPOSITE AUTHORITARIAN SCALE

This is a study of what the general public thinks about a number of social questions. The best answer to each statement below is *your personal opinion*. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others. Whether you agree, or disagree with any statement, you can be sure that many other people feel the same way you do.

Mark each statement in the left margin according to how much you agree or disagree with it. *Please mark every one.* Write +1, +2, or +3; or -1, -2, or -3, depending on how you feel in each case.

+1: I agree a little

+2: I agree pretty much

+3: I agree very much

-1: I disagree a little

-2: I disagree pretty much

-3: I disagree very much

- 1. Human nature being what it is, there will always be war and conflicts.
- 2. Obedience and respect for authority are the most important virtues children should learn.
- 3. Any able-bodied man can get a job right now if he tries hard enough.
- 4. The American Press is unfair in its treatment of Soviet Russia.
- 5. No weakness or difficulty can hold us back if we have enough will power.
- 6. Labor unions are all right, but we can't allow strikes.
- 7. Science has its place, but there are many important things that can never possibly be understood by the human mind.
- 8. Every person should have complete faith in some supernatural power whose decisions he obeys without question.
- 9. The superior people in society (any society) are justified in dominating national affairs by force, if necessary, because of the very fact that they are superior.
- 10. When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.
- 11. The worst danger to real Americanism during the last 50 years has come from foreign ideas and agitators.
- 12. A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.
- 13. What the youth needs most is strict discipline, rugged determination, and the will to fight for family and country.
- 14. A country is moulded largely by its leaders rather than by the masses of its people.
- 15. In view of the present job shortages in America we should not open our doors to the immigration of displaced persons.
- 16. Some people are born with the urge to jump from high places.
- 17. Prison life helps a lot of men to come to their senses.
- 18. Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.
- 19. The average person isn't intelligent enough to vote his way out of a depression.
- 20. Now that a new world organization is set up, America must be sure that she loses none of her independence and complete power as a sovereign nation.
- 21. An insult to our honor should always be punished.
- 22. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.
- 23. People should not be allowed to vote until they have had the proper education.
- 24. What this country needs most, more than laws and political program, is a few courageous leaders in whom the people can put their faith.

TABLE A (continued)

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- 25. Sex crimes such as rape and attacks on children deserve more than mere imprisonment: such people should be publicly whipped or worse.
 - 26. The unemployed should be given military training so our country could be protected in time of war.
 - 27. People can be divided into two distinct classes: the weak and the strong.
 - 28. Certain religious sects which refuse to salute the flag should be forced to conform to such patriotic action, or else be abolished.
 - 29. There is hardly anything lower than a person who does not feel a great love, gratitude and respect for his parents.
 - 30. Universities should not be allowed to grant charters to communist sponsored organizations.
 - 31. Most of the men in prison are no damn good.
 - 32. Someday it will probably be shown that astrology can explain a lot of things.
 - 33. Nowadays more and more people are prying into matters that should remain personal and private.
 - 34. Army life is a good influence on most young men.
 - 35. Wars and social troubles may someday be ended by an earthquake or flood that will destroy the whole world.
 - 36. Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.
 - 37. Patriotism and loyalty to one's country are more important than one's intellectual convictions.
 - 38. The wild sex life of the old Greeks and Romans was tame compared to some of the goings on in this country, even in places where people might least expect it.
 - 39. In the long run, guns will do more than food will to stop the spread of communism.
 - 40. If people would talk less and work more, everybody would be better off.
 - 41. The true American way of life is disappearing so fast that forces may be necessary to preserve it.
 - 42. One should always respect the authority of older persons.
 - 43. Most people don't realize how much of our lives are controlled by plots hatched in secret places.
 - 44. Homosexuals are hardly better than criminals and ought to be severely punished.
 - 45. America may not be perfect, but the American Way has brought us about as close as human beings can get to a perfect society.
 - 46. No sane, normal, decent person would ever think of hurting a close friend or relative.
 - 47. A man shouldn't be given the necessities of life unless he is willing to work for them.
 - 48. Nothing can hurt you as long as you keep a smile on your face.
 - 49. Familiarity breeds contempt.
 - 50. It is essential for learning or effective work that our teachers or bosses outline in detail what is to be done and exactly how to do it.
 - 51. Some leisure is necessary but it is good hard work that makes life interesting and worth-while.
 - 52. There are just as many things wrong with the United States as there are with Russia.
 - 53. It is only natural and right for each person to think that his family is better than any other.
 - 54. Books and movies ought not to deal so much with the unpleasant and seamy side of life; they ought to concentrate on themes that are entertaining or uplifting.
 - 55. When you come right down to it, it's human nature never to do anything without an eye to one's own profit.
-

was found to correlate $+ .85$ with Form 60 of the original *F*-scale on an independent sample of college students.

All groups were administered the 284-item Adjective Check List (3) compiled by Harrison Gough with instructions to check those adjectives descriptive of themselves. At College *A* and *C* the subjects took, in addition, the California Psychological Inventory (4), a personality item test similar in form to the *MMPI* but designed for use with non-clinical populations.

D. THE SAMPLE (TABLE 1)

The three college environments sampled were (a) College *A*—a small, Eastern, liberal arts graduate and undergraduate college for women. This college does not have any criteria for admission other than high academic standing and high performance on the College Board Examination. It has a tradition that could best be described as "19th century liberalism." The

TABLE 1
BREAKDOWN OF SUBJECTS BY RELIGIOUS AFFILIATION, COLLEGE ATTENDED, AND COLLEGE CLASS

	College <i>A</i>		University <i>B</i>		College <i>C</i>		Total
	Freshmen	Seniors	Freshmen	Seniors	Freshmen	Seniors	
Jewish	28	25	17	17			87
Protestant	48	44	17	40			149
Catholic					31	26	57
Total	76	69	34	57	31	26	293

ethnic background of the student body is estimated as 5 per cent Catholic, 25 per cent Jewish, and 70 per cent Protestant. There are no sororities. (b) University *B* which is a large Eastern co-ed university located in a large city. The majority of the students are members of fraternal organizations. (c) College *C*, an upper middle class Catholic liberal arts college for women with an enrollment of 450.

In the fall of 1951, 28 Jewish freshmen, 48 Protestant freshmen, 25 Jewish seniors, and 44 Protestant seniors attending College *A* responded to an invitation to participate in the testing. They were not told the nature of the study or how they had been selected except that they were a random sample of their classes.

This gave 76 freshmen and 69 seniors which represent approximately one-half of the actual size of their classes.

At the same time 17 Jewish and 17 Protestant freshmen and 17 Jewish and 40 Protestant seniors belonging to Protestant and Jewish sororities at University *B* were tested on the Authoritarian scale and the Adjective Check List.

College *C* was represented by 31 freshmen and 26 senior Catholic students who took all three procedures. This gave an *N* of 87 Jews, 149 Protestants, and 57 Catholics for a total of 293. In addition to the above, 13 of the original Jewish freshmen and 26 of the original Protestant freshmen from College *A* were retested on the Authoritarian scale during the spring of their junior year in college as a control.

E. RESULTS

The Authoritarian scale results are in Table 2. The 145 College *A* students had a mean score of 186.5 vs. 195.6 for the 91 University *B* students. This difference results in a critical ratio of 1.6 which is not significant. The 57 College *C* students got a mean of 237.2 which is significantly different from both College *A* and University *B* at $<.0001$ level. All the possible relevant breakdowns were made with respect to ethnic origin, college class, and colleges attended. Of these 23 comparisons the following yielded significant differences: seniors at College *A* scored significantly lower than Jewish seniors at University *B* at the .002 level. The total Jewish sample scored significantly lower than the total Protestant sample at $<.0001$ level. Jewish seniors at College *A* scored significantly lower than Protestant seniors at College *A* at $<.0001$ level. Jewish seniors at University *B* scored significantly lower than Protestant seniors at University *B* at the .005 level. The combined group of seniors at College *A* scored significantly lower than the combined group of freshmen at College *A* at $<.0001$ level. The Jewish seniors at College *A* scored significantly lower than the Jewish freshmen at College *A* at $<.0001$ level while interestingly enough this was not true of the Protestant freshmen and senior differences at either College *A* or University *B* nor was it true of the Jewish freshmen and senior comparison at University *B*. College *C* seniors and freshmen showed a significant difference with lower scores for the seniors although the senior mean at College *C* was 30 points higher than the next highest mean which was that of Protestant freshmen of University *B*.

The interesting feature of these results is the startling fact that the only group to change significantly in the direction of lower *F* scores after three years of college are the Jewish group at College *A* and the Catholic students at College *C*. One might argue in the case of the latter that having started out with such high scores it would be strange indeed if there was not some drop after three years of a liberal arts curriculum and indeed the drop was only from 243.7 to 231.7, while the change at College *A* for the Jewish students was from a mean of 191.8 to 141.7, a drop of 50 points.

TABLE 2

DIFFERENCE BETWEEN THE MEAN SCORES OBTAINED BY THE DIFFERENT GROUPS ON THE TOTAL SCALE AND THE *t* TESTS OF SIGNIFICANCE

Group	N	Mean	Group	N	Mean	Diff.	CR	<i>t</i>	P
College A	145	186.545	University B	91	195.560	5.58	1.615		
Pro. Fres.	48	198.979	Pro. Fres.	17	214.706	10.571	1.488		
Jew. Fres.	28	191.786	Jew. Fres.	17	189.647	3.814	.561		
Seniors	69	162.504	Seniors	57	192.840	7.232	4.139		<.0001
Pro. Srs.	44	195.136	Pro. Srs.	40	200.175	8.947	.563		
Jew. Srs.	25	141.680	Jew. Srs.	17	171.417	9.479	3.143		.002
Protestant	149	199.960	Jewish	87	173.000	5.383	5.008		<.0001
Pro. Fres. at A	48	198.979	Jew. Fres. at A	28	191.786	9.249	.778		
Pro. Fres. at B	17	214.706	Jew. Fres. at B	17	189.647	12.514		2.002	<.1P>.05
Pro. Srs. at A	44	195.136	Jew. Srs. at A	25	141.680	10.083	5.301		<.0001
Pro. Srs. at B	40	200.175	Jew. Srs. at B	17	171.471	9.983	2.875		.005
Seniors	126	182.936	Freshmen	110	198.136	5.386	2.82		.005
All Srs. at A	69	162.504	All Fres. at A	76	196.330	7.185	4.708		<.0001
Pro. Srs. at A	44	195.136	Pro. Fres. at A	48	198.979	8.417	.456		
Jew. Srs. at A	25	141.680	Jew. Fres. at A	28	191.786	10.492	4.776		<.0001
All Srs. at B	57	192.840	All Fres. at B	34	202.176	7.126	1.296		
Pro. Srs. at B	40	200.175	Pro. Fres. at B	17	214.706	11.015	1.320		
Jew. Srs. at B	17	171.471	Jew. Srs. at B	17	189.640	10.243		1.774	<.1P>.05
College C			College C						
Seniors	31	231.710	Freshmen	26	243.692	2.709		4.423	<.001
College C	57	237.175	College A	145	186.545	6.466	7.828		<.0001
College C	57	237.175	University B	91	195.560	6.023	6.909		<.0001
College C	57	237.175	Total Jew.	87	173.000	6.424	9.989		<.0001
College C	57	237.175	Total Pro.	149	199.960	5.933	6.272		<.0001

In order to explain these results it was hypothesized that Jewish students at College *A* were undergoing a more drastic change of environment and therefore experiencing a greater need to restructure their social-psychological fields than any other of our groups. The Jews at University *B* avoided this problem by being members of segregated sorority groups. In an attempt to shed light on this hypothesis, the secondary school origins of our College *A* sample was investigated. It turned out that 66 per cent of the Jewish students had attended large public high schools in Eastern cities where the school populations of their neighborhoods ran to as high as 80 per cent Jewish. Less than 20 per cent of the Protestant sample attended public high schools in large Eastern cities. Therefore it was concluded that until coming to College *A*, the Jewish group had in fact not been a minority group as far as everyday life went. At College *A*, however, they were a minority, although a sizable one, and were forced in order to participate in college activities to associate with members of the in-group. This impression has been corroborated by interviewing the sample after the experiment. The Protestants on the other hand were used to a Jewish minority and college did not constitute much of a change. It is possible that in line with the Bennington results of Newcomb (5) the Jewish group tends to assimilate the social ideology represented by the college to a greater degree as an attempt to identify with the new in-group. As a check on this effect, 13 Jews and 26 Protestants were tested again—two years later on the Authoritarian Scale. In their freshman year they showed no difference but now during their junior year the Jewish group had dropped from 191.78 to 143.54 while the Protestant group had dropped from 198.97 to 178.75. These findings would appear to confirm the hypothesis of a differential effect of the environment of College *A* on the two ethnic groups.

As to the bearing of this study on the general validity of the description of the high authoritarian scores put forth by the Berkeley group, let us look at the Personality Inventory results and the Adjective Check Lists.

The upper and lower 29 per cent of the combined College *A* and College *C* groups were compared on each of the 14 sub-scales of the California Psychological Inventory (Table 3). The following scales discriminated the groups at the 1 per cent level. I will report the results of the scales on which the low authoritarian group scored higher.

The Infrequency Scale designed to indicate carelessness of answer and lack of conformity in response.

The Tolerance Scale to identify persons with permissive, accepting, and tolerant social beliefs and attitudes.

The Flexibility Scale (CR 8.049) designed to indicate the degree of flexibility and adaptability of a person's thinking and social behavior.

The Status Scale designed to serve as an index or prediction of actual or potential social status.

The Delinquency Scale which indicates the potentiality for delinquent, troublesome behavior, and the tendency to rebel against authority and convention.

TABLE 3

DIFFERENCE BETWEEN HIGHS AND LOWS ON THE TOTAL AUTHORITARIAN SCALE ON THE CALIFORNIA PERSONALITY INVENTORY

	High N = 42		Low N = 44		CR	P
	Mean	σ	Mean	σ		
Infrequency	2.25	1.98	3.70	1.80	3.52	<.01
Good Impression	17.50	5.38	16.59	5.03	.8018	
Dissimulation	8.74	4.19	8.73	5.56	.0094	
Social Responsibility	32.69	3.54	33.57	4.11	1.0564	
Tolerance	22.52	4.37	24.70	4.25	2.32	<.05
Flexibility	9.21	3.59	15.11	3.11	8.049	<.01
Status	20.33	4.07	24.14	2.70	5.0397	<.01
Dominance	29.67	5.43	30.93	5.57	1.0535	
Social Participation	25.79	5.51	26.77	4.74	.8742	
Femininity	23.02	3.79	22.45	3.87	.6851	
Delinquency	13.43	3.38	18.07	5.76	4.5490	<.01
Intellectual Efficiency	39.19	4.82	42.27	4.52	3.0255	<.01
Academic Achievement	27.81	4.15	27.18	3.90	.7184	
Honor Point Ratio	18.71	3.24	23.68	2.74	7.5994	<.01

The Intellectual Efficiency Scale which indicates the degree of personal and intellectual efficiency attained.

The Honor Point Ratio Scale which identifies these factors of interest and motivation which facilitate scholastic achievement at the college level.

As close a confirmation as these results are for the authoritarian syndrome as described in the original study, the results on the Adjective checks are even closer. Using the same high and low 29 per cent an item analysis of the Adjectives checked significantly more often by the low *F*s at the 5 per cent level or better are: active, aggressive, alert, anxious, argumentative, artistic, assertive, awkward, bossy, careless, clear-thinking, conceited, confused, coöperative, curious, defensive, dissatisfied, emotional, enthusiastic, excitable, frank, high-strung, idealistic, imaginative, immature, independent, individualistic, intelligent, interest-wide, irritable, moody, obnoxious, original, outspoken, progressive, rebellious, sarcastic, serious, sophisticated, tactless, thoughtful, and tolerant. Contrasted with the above, the following were checked more frequently at the 5 per cent level or better by the high *F*s: calm, cautious, capable, cheerful, conservative, contented, cool, dignified,

easygoing, gentle, jolly, mannerly, mature, mild, moderate, practical, peaceable, pleasant, prejudiced, sentimental, sociable, stable, stolid, and wholesome. One certainly is impressed by the anti-intrceptive and unambiguous nature of these self-perceptions as contrasted to the more unresolved pattern of the college student pictured in the first list.

F. CONCLUSIONS

It can be stated from our results that the challenge to existing authoritarian ideology is greatest for minority group members coming from a homogeneous background to an unstructured college environment as typified by College A. Time spent at College as such seems to have less effect than one would like to expect on majority group members as measured by this scale. Furthermore, the syndrome measured by our version of the authoritarian scales seems to be reflected in a consistent pattern by two standardized personality instruments lending support to the notion of Adorno *et al.* (1) that we are dealing with a generalized trait pattern and not a specific attitude which, however, can be changed, at least in its social attributes, by differential social experiences. Therefore, in samples as homogeneous with respect to education and general intellectual level as ours, it would be safest to regard the authoritarian syndrome as a collection of social-personality traits perhaps related to a particular type of early experience but subject to considerable revision throughout life.

G. SUMMARY

A total of 293 white women college students attending three different types of colleges and coming from Jewish, Protestant, and Catholic backgrounds were tested on a composite authoritarian scale, the California Psychological Inventory, and the Gough Adjective Check List. Comparisons of the schools attended, the ethnic background, and the year in college were made on the two personality instruments with authoritarian scores. The challenge to existing authoritarianism was found to be greatest for minority group members attending the small non-denominational liberal arts college. In general the assumptions concerning the authoritarian personality syndrome were upheld by an analysis of the personality scales.

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SHORT ARTICLES AND NOTES

The Journal of Social Psychology, 1956, **44**, 289-291.

PERSONALITIES IN FACES: V. PERSONAL IDENTIFICATION AND THE JUDGMENT OF FACIAL CHARACTERISTICS*

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The rôle of central variables in the structuring of perceptual responses is a current preoccupation of both perceptual and personality theorists. Results of a variety of experiments have been advanced in support of the view that the motivational system of the perceiver conditions what is seen and how it is seen. However, the importance of these data for a general behavior theory is presently unclear, for several reasons: The reported effects have been typically established under conditions of extreme stimulus impoverishment, the subjects are generally required to make perceptual judgments of an uncommon sort, and the motivational variable is usually uncomplicated and more of the nature of tissue needs. Unless these motivation-induced effects are demonstrated under circumstances more representative of the situations to which theory must ultimately apply, their significance remains limited.

A stable relationship between judged physiognomy and inferred personality has been demonstrated (2). Furthermore, it has been shown that the affective reaction produced by a face influences the personality traits assigned to it (1). Could it now be demonstrated that personality evaluation affects the perception of facial features, a means of meeting the criterion of representativeness just mentioned would have been achieved. In addition, another method for experimentally exploring the heretofore generally inaccessible higher level "explanatory" concepts of personality theory (e.g., identification, projection, rationalization, etc.) would have been provided. Accordingly, the present study was designed to determine if the tendency to reject, emulate, or identify with an individual influences the perception of his physical appearance. *It is predicted that in the instance of positive identification perceptual distortion will be shown when a judge rates his own physiognomy and that of the preferred person more similarly than does*

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a rater unacquainted with these two individuals. In the case of negative identification an opposite effect is expected. Data obtained should also indicate whether or not there is greater objective similarity between the facial characteristics of judge and preferred than between those of judge and non-preferred.

Fifteen male college students at the Atlanta Division of the University of Georgia, comprising the membership of one social fraternity, acted as experimental subjects. Full face photographs, including only face and neck against a uniform white background, were taken by one of the investigators. These were projected on a screen and ratings of 29 facial characteristics made on a seven-point scale. Examples of facial characteristics are: light-dark complexion, small-large nose, and heavy-light beard. Each person rated his own photograph as well as those of his fraternity brothers. "Objective" (control) descriptions of each face were obtained by having 15 students at Emory University, none of whom were acquainted with or had knowledge of the pictured individuals, make similar ratings. After physiognomic rating had been completed, the experimental subjects were asked to identify the person in their group they would *most like to be* and *least like to be*. Product-moment correlation coefficients were next obtained between each subject's rating of his own physiognomy and those of the persons he had indicated he would most and least like to be, with $N = 29$ facial characteristics. These were then compared with an r between modal ratings of the same two pictures made by the control group.

The mean coefficient between self-ratings and ratings of the most preferred person's facial features was .30 (range = $-.09$ to $.52$); the corresponding control r was a .21 (range = $-.08$ to $.54$). This suggests confirmation of the hypothesis specified above in the instance of positive identification. However, when individual r 's were transformed to z scores and a t test performed, the experimental-control difference was found not to be significant ($t = 1.13$, $df = 28$, $P > .05$). The mean experimental and control r 's in the case of negative identification were practically identical (.15 and .16 respectively). These data thus indicate no general tendency for the perception of facial features to be other than veridical. In a small number of subjects, however, differences were marked and compatible with expectation, suggesting the possible fruitfulness of further investigation. Comparison of the two sets of correlation coefficients for the control groups provides no evidence of greater objective resemblance between the judge and preferred than between judge and non-preferred person.

There are several possible ways of tentatively accounting for these re-

sults: First, it may be suggested that the peripheral stimulation processes associated with judgment of physiognomy are of such magnitude and stability that they, under most conditions, defy modification by central dynamics. Alternatively, it may be proposed that modes of perceiving facial characteristics are so thoroughly developed in the adult that the needs of the individual personality have no effect upon them: perceptions made by the sophisticated organism tend to be objective. Either of these possibilities suggests the limited significance of the "New Look" work for general personality theory. It is also possible that the present results are artifacts of procedure. An accuracy orientation induced by the formal specification of the experimental task could preclude the hypothesized distortion. Preclusion might also result from an inadequate elaboration of criteria for identifying the most and least preferred person. Individuals, for example, could have been designated for reasons of personal circumstance—e.g., a wealthy parent—rather than personality characteristics. Further experimentation is necessary before any certain conclusions may be drawn.

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BOOKS

The *Journal of Genetic Psychology*, the *Journal of General Psychology*, and the *Journal of Social Psychology*, will buy competent reviews at not less than \$2 per printed page, and not more than \$3 per printed page, the total to be not more than \$15.

Conditions. Only those books that are listed below in this section are eligible for such reviews. In general, any book so listed contains one or more of the following traits: (a) Makes an important theoretical contribution; (b) consists largely of original experimental research; (c) has a creative or revolutionary influence in some special field or the entire field of psychology; (d) presents important techniques.

The books are listed approximately in order of receipt, and cover a period of not more than two years. A reviewer must possess the Ph.D. degree or its equal in training and experience.

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CRITICAL REVIEWS OF RECENT BOOKS

The Journal of Social Psychology, 1956, 44, 295-297.

(Henry, George W. *Sex Variants: A Study of Homosexual Patterns*. New York: Hoeber, 1948. Pp. 1130. (Basic Book.))

REVIEWED BY IRWIN D. RINDER

This study, originally published in 1941, combined in a single edition in 1948, and recently released through the facilities of the Basic Book Club, is printed by the medical publishing department of Harpers and was sponsored by the Committee for the Study of Sex Variants, Inc. The work is intended primarily for the medical profession and allied fields and consists of the case histories of 80 selected cases along with the results of several biological tests and one psychological measure. Review at this late date is perhaps justifiable in that more members of allied fields, particularly social scientific fields, will now be reading this book than at any previous time. It is most relevant to the areas of Social Disorganization, Social Psychology, and Social Psychiatry.

This volume unwittingly illustrates some of the pitfalls which await the study based upon inadequate scientific design; and, more rewardingly, some of the advantages accruing from careful history taking. About the design, this pre-Kinsey report makes one all the more appreciative of the scrupulous attempts of Kinsey and his associates to make explicit their methodology, data procurement, classification, indices, etc. *Sex Variants* presents the histories of 80 variants selected, without our being advised as to the basis of their selection, from an initially larger group of subjects. These subjects volunteered and were recruited by a field worker from what appears to be preponderantly the "Village Bohemian" and "arty" set. They are classified as bisexuals, homosexuals, and narcissistic types, and plausible though this division may seem from the record, it is nevertheless intuitive or subjective in the absence of any statement of criteria for such a classification. Although a good deal is said about the value of the material in this volume for the general medical practitioner, this reviewer could find little to support this claim. The small number of cases, lack of adequately established norms for a "normal" population, failure to test observed differences with the simplest tests for statistical significance, possible atypicality of these cases with reference to the variant universe, and other considerations vitiate

those few biological characteristics in which the variants did seem somewhat unique.

There accompanies each case the results of medical examination by different physicians and their often subjective appraisal of such things as hairiness, size of genitalia, somatotype, etc., with no apparent attempt to standardize these evaluations or to check on interjudge or intrajudge consistency or reliability. Where systematic anthropometric data was available, it is this reviewer's opinion that a better case could be made for the lack of biological differentia between variant and normal populations than vice versa. One of the indexes based upon pelvic dimensions seemed most likely to prove of future usefulness, and this primarily with respect to the female variant. R. L. Dickinson's appendix on the gynecology of homosexuality presents some evidence of there being presumptive anatomical signs of auto- or homosexuality, but this is in the nature of an hypothesis at the present stage in knowledge. Finally, while lack of an index may be excused as more costly than rewarding, the value of this volume would have been enhanced by a glossary and a bibliography.

Having presented several critical comments it becomes necessary now to acknowledge some of the more favorable aspects of this study. Although the subjects are probably not typical of sex variants in other regions, social strata, intellectual competence, etc., nevertheless the interviews are sufficiently candid and in depth to provide the reader with some intimate glimpses of the experiences, practices, and understandings of one sex variant sub-culture. Here are found the rôles, i.e., queen, dyke, etc., the values and expectations, the argot, and the appraisals of the non-deviant culture on the one hand and of the various cultish alliances within the deviant group on the other. Although the histories were taken individually there is an appreciable amount of cross-reference to other variants who have participated in the study and given their histories too. From this the reader may catch glimpses of pairs and larger groupings of variants in their rather unstable and constantly coalescing relationships.

Of considerable value is the abundance of data presented through these 80 histories of genetic psychosexual development and of the influences; familial, peer group, and super- and subordinate institutional relationships which contributed to the emergence of the practices and self-definitions which identify the adult sex variant. The portion of the interviews recounting family history, often over several generations, are unique in their abundance, and of interest as much for what they tell us of the respondent's impressions and projectivity relative to their ancestors as for the doubtful reliability of such

family folklore. The one standard psychological measure used in conjunction with cases was the Terman-Miles Masculinity-Femininity Test. The scores obtained by the deviants contribute to the validation of the test, and the test discriminates between masculinity and femininity whether the respondent is male or female.

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BOOKS RECENTLY RECEIVED

(There will always be two pages of book titles, listed in the order of receipt, i.e., the most recently received books will be found at the end of the list.)

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